



LAS VEGAS REPORT/ 'No Winner'



AUDIO PROCESSING for 'Special' Systems



'DISH IT OUT' explores "How Should
HBO Market CBD Services?"

THE TWICE PER MONTH BUSINESS JOURNAL OF TVRO

COOP'S SATELLITE DIGEST



APRIL 15, 1984

UNISAT.TM EXPERIENCE IS THE BEST FEATURE.

Watch what happens when a strong, dedicated company takes a new technology and does something better with it. □ UnisatTM—Uniden[®] Satellite Technology—has put two decades of telecommunications experience into a full line of satellite television receiving equipment that reaches beyond anything you've seen before.

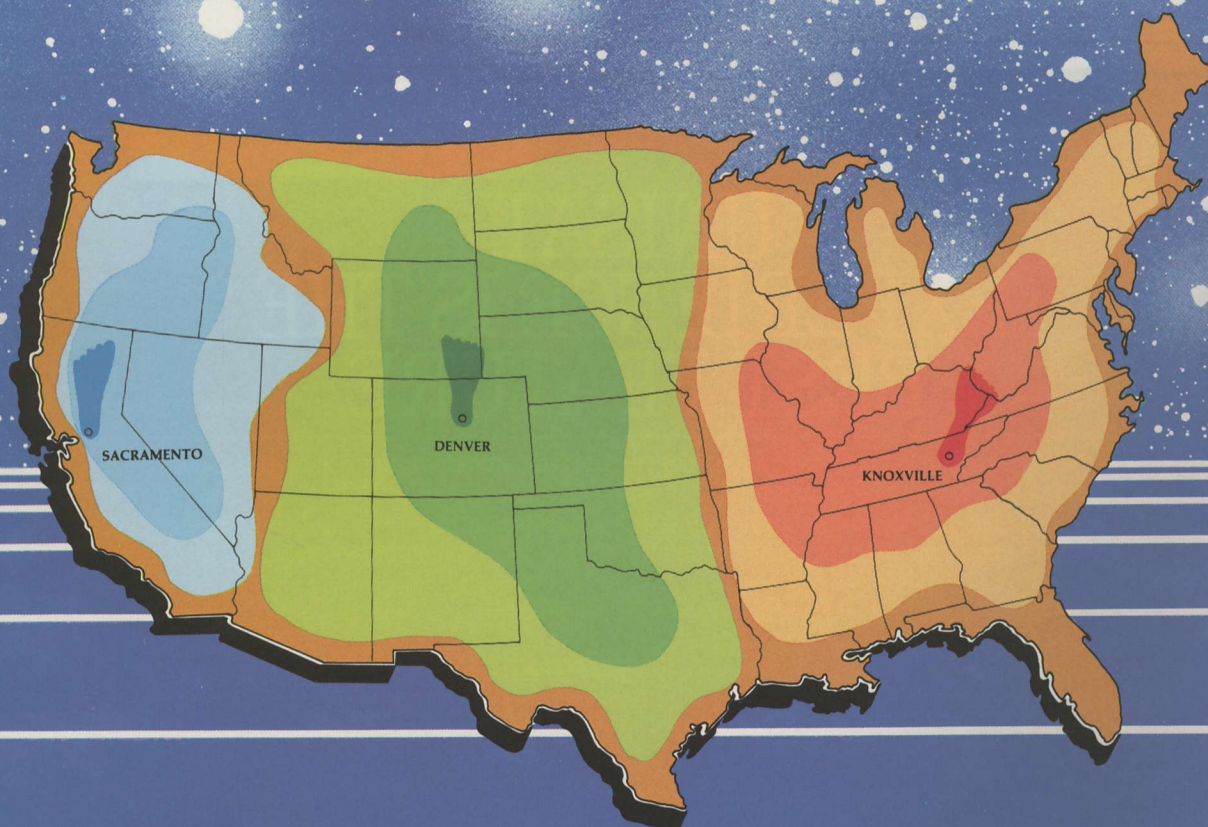
uniden[®]
UNISAT.TM

15161 Triton Lane
Huntington Beach, CA 92649



THE ECHOSPHERE NATIONAL FOOTPRINT

NOW OPEN . . . ECHOSPHERE EAST



NORMAL DELIVERY NATIONWIDE . . .
NOW ONLY 48 HOURS!



5671 WAREHOUSE WAY
SACRAMENTO, CA 95826
(916) 381-5084

To order call:

800-338-5477 (WESTERN ZONE)
800-338-5478 (IN-STATE CA)



2250 SO. RARITAN, BLDG. A
ENGLEWOOD, CO 80110
(303) 935-1909

To order call:

800-521-9282 (NATIONAL)



10536 LEXINGTON DR.
KNOXVILLE, TN 37922
(615) 966-4114

To order call:

800-223-1507 (EASTERN ZONE)

APRIL 15, 1984

CONTROL OF SPACE

Each of us must accept the responsibility for our actions and I take full responsibility for my 'reaction' to the Board of Director's meeting for SPACE on Saturday the 17th of March during the SPACE show.

This was an open meeting and there were members of the press present, a handful of non-board member pioneers and a smattering of interested dealers and distributors. Frankly, the room should have been filled to overflow capacity and it was not. I know it was difficult to locate the meeting room, and there had not been adequate 'advertising' of the time and place, but as an industry we should have turned out in greater force. I pondered why.

When the meeting was over, and we had a new VP and General Manager, I wondered aloud as to whether we now had **two** VP's; one as general manager and one as General Counsel. I found out that 'yes, indeed,' that is what we had. I recalled discussion at the Board meeting regarding **what** the new general manager would do, and **who** he would report to. I was not pleased that nobody seemed to know the answers to these questions.

In particular, I was disappointed to see the Board bent on continuing the war with Rick Schneringer; **voting to hold a fall SPACE convention** sometime between August 15 and September 7. At least one member of the board wanted to hold the SPACE fall convention 'as close to the STTI Nashville show as possible' and 'preferably just in front of the STTI show.' I felt that if this particular member of the Board could have arranged to hold the SPACE show at the same Opryland location as STTI, he would have done so.

Finally, when the Board failed to come to grips with the unusual way SPACE is structured, with the Pioneer group always in control, I knew that I could no longer sit on the board **as an elected representative of the consumers.**

Accordingly, on Sunday morning I went to Bob Behar and did two things:

1) I joined SPACE as a 'Pioneer Member,'

tendering my check for \$300 (I was awarded a lifetime membership back in 1981);

2) I formally notified Behar of my resignation from the Board as an elected representative of the consumers.

I then explained why.

SPACE must be re-structured. It is apparent to me that as long as we have the present leadership, it will continue to be run as a 'private club.' There are several ways to re-structure SPACE; it **could** be done from outside by starting a rival trade association. Or, it could be done by working within the system. **I chose the latter approach** since the last thing this industry needs is more division in the ranks.

My plan is very simple. There are **23** members on the Board. I intend to find **12** good men who can apply practical business sense to the operation of SPACE in 1985. I plan to encourage these 12 good men to run as a 'slate' dedicated to the reform of SPACE. I intend to be one of those 12 and to run for a Pioneer seat on the board.

Naturally those who like the way things are now controlled will fight this plan. And that's OK; the democratic process demands that there be dialogue and discussion when there are different points of view. Out of that dialogue will come a better understanding of the goals, and role, of our trade association.

Over the next sixty days, as we bring together our 'slate of 12,' there will be 'platform meetings' where every possible input will be considered. **I'd like to invite you to participate.** Drop me a line with your own thoughts on how SPACE can be reformed and made more responsive to our industry's needs. Together **we can** straighten out the problems we face.

**COOP'S
SATELLITE
DIGEST
/2**



CSD/2 - Coop's Satellite Digest published monthly by West Indies Video, Ltd., a Turks and Caicos Corporation with corporate offices located at Grace Bay, Providenciales, Turks and Caicos Islands, BWI. Sales and subscription offices maintained in Fort Lauderdale, Florida (P.O. Box 100858, Ft. Lauderdale, Fl. 33310; telephone 305/771-0505 weekdays between 9 AM and 4 PM eastern time). CSD/2 is issued on the 15th of each month and is sent via AIRmail to all subscribers within the USA to CSD (Coop's Satellite Digest; issued the 1st of each month) as well as to all Dealer Members of SPACE; the TVRO industry's trade association. Annual subscription rates within USA for CSD plus CSD/2 is \$75 per year (AIRmail); within Canada and Mexico \$85 per year (AIRmail); Outside of USA et al, \$100 per year (AIRmail). Foreign subscription payments in US funds only. Entire contents copyright (c) 1984/5 by West Indies Video, Ltd; Robert B., Susan T., Kevin P., and Tasha A. Cooper.

AN LNA

by any other
name, is still...

AN LNA



SPECIFICATIONS

noise figure @ 26 °c:
50°-90° temperature range
[75° typical or better]

frequency range:
3.7 to 4.2 GHz.

gain:
37 dB [min], 40 dB [normal]

voltage:
+ 14v to + 23v @ 60 ma. [max]

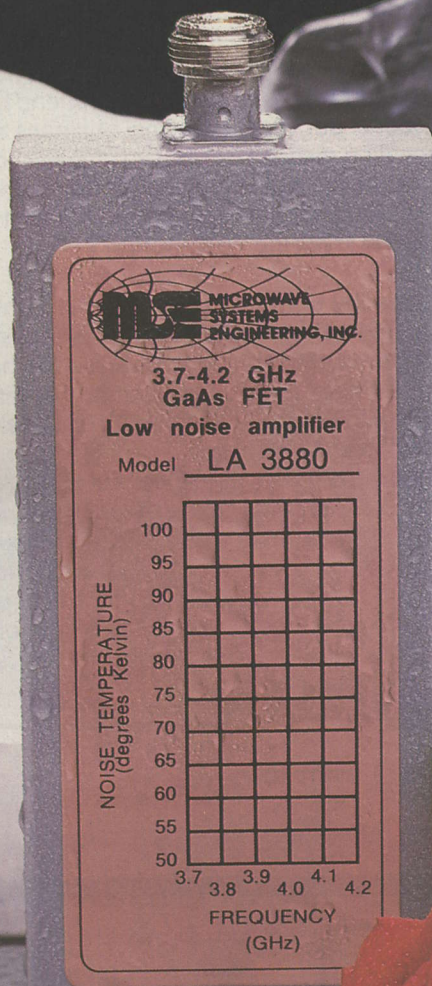
RF input flange:
CPR 229G waveguide

RF output:
type "N" female

operating temperature range:
- 40 °c to + 60 °c

weight:
14.5 oz.

warranty:
one year exchange



MSM Inc.
P. O. Box 9541
O'Fallon, MO
63366

Shipping / Receiving
1000
Lake Saint Louis Blvd.
Suite 300
Lake Saint Louis,
MO 63367

314-625-4830

UNTIL NOW!

ANTENNAS/Antenna Support Equipment

CAYSON ELECTRONICS (Rt. 3, Box 160, Fulton, Ms. 38843; 800/892-4916) has introduced a weather protective boot to seal the motor and jack housing on the Cayson Centurion 2001 antenna positioner system.

COMMODORE YACHT CORPORATION (Pine Island, Georgia) has entered the TVRO antenna business with a line of 9 feet (one and two piece) fiberglass dishes. The new antenna line is being produced by a new corporate subsidiary, Pine Island Industries, and will be distributed by National Satellite Communications from their facilities in Orlando, Florida and Clifton Park, NJ.

MID-TEC COMMUNICATIONS, manufacturer of an 8 foot spun aluminum dish system, has recently introduced a line of 10 and 12 foot mesh surface dishes as well as moving their operations to new, larger, quarters. Mid-Tech is now at Rt. 2, Box 65, Highway 14 East, Richland Center, Wisconsin 53581.

ODOM ANTENNAS INC. just completing formal opening of a new, larger manufacturing facility and they have also adopted a new 'two-step' marketing program for their product. Under the new marketing plan, **distributors** will be granted exclusive territorial area amounting to a national average of 'two per state.' ODOM presently has more than 300 antenna **dealers** nationwide, plus Canada (ODOM Antennas, P.O. Box 1017, Beebe, Arkansas 72012; 501/882-6482).

OWENS-CORNING FIBERGLAS CORP. (Fiberglas Tower, Toledo, Oh. 43659; 419/248-8146, John S. Blaszczyk) has entered the parabolic **materials** business with a glass-fiber reinforced composite (FRP design) antenna **design**. The first products produced using the new technology are in the four foot size region and are being used by General Instruments/USCI for the recently activated USCI 12 (11) GHz DBS program now being sold in portions of the upper mid-west



STACKS of 4 foot dishes for the 12 GHz market

Attention OEMs/Distributors: CSD/2, issued on the 15th of each month, provides you with an **opportunity** to announce new products, services and personnel changes to the worldwide TVRO industry. Please place **Carol Graba** (CSD/2, P.O. Box 100858, Ft. Lauderdale, Fl. 33310) on your mailing list to receive press releases and other reports from your firm. Deadlines for inclusion in the dated-month issue are the 25th of the preceding month. **CSD/2** is the mid-month companion to **Coop's Satellite Digest** (issued on the 1st of each month) and is distributed to all (U.S.) domestic subscribers to CSD, selected non-US subscribers, plus to **all dealer members of SPACE**, the international trade association for the home TVRO industry.

NEW
PRODUCTS/
SERVICES/
EVENTS

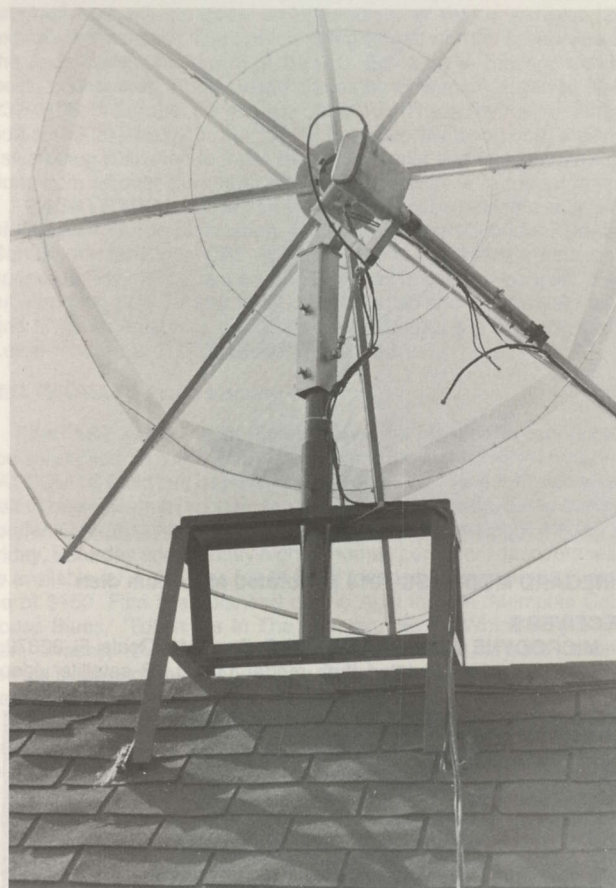
WINEGARD
SC-1018 10' DISH

SATELLITE
SHOWTIME

and east. Arguments made by Owens-Corning for their DBS **material** line, over traditional aluminum reflector products, include (a) more suitable for high volume production, (b) compression-molded/sheet molding is used in a one step process, (c) high precision, (d) (far) lower heat build-ups resulting in 'cooler electronics' at the dish, and, (e) corrosion resistant.

RANGER ANTENNA COMPANY (1961 S.E. 'N' Street, Grants Pass, Or. 97526; 503/474-6050) has shown its new Model XRM-11 antenna; the result, they say, of nine months of extensive research. The antenna uses slide-in panels with an extruded aluminum design (patent pending), and is available in wire mesh or solid reflector surfaces.

SAT-ROOF MOUNTS MANUFACTURING (20 Orlando Street, Springfield, Ma. 01180; 413/736-1370) has introduced a 'stand-alone

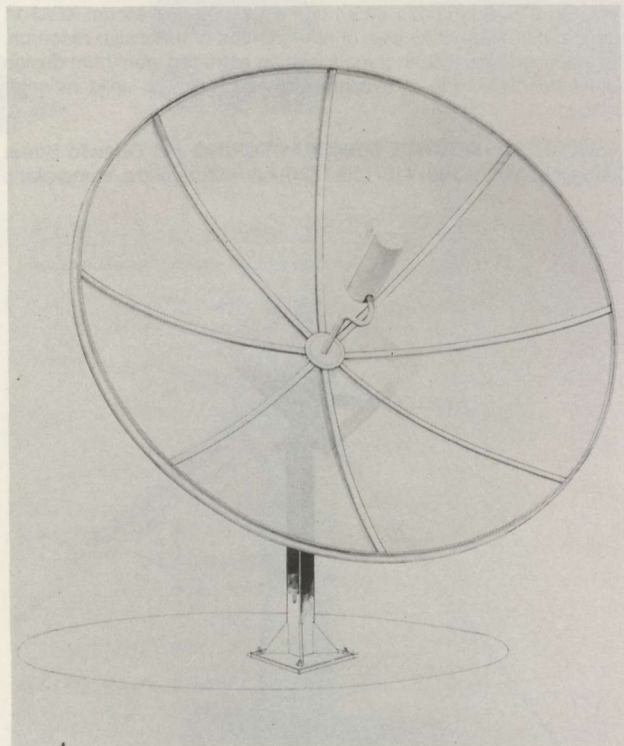


PEAK PERFORMER model RM-3 roof mount

roof mount system for TVRO dish antennas. Called the 'peak performer,' the model PRM-3 can be used on a flat or peaked roof of 'any pitch.' They claim the mount will exceed 'weight and wind-loading specifications' for all dishes manufactured for use with 2-7/8" pole-type mounts. Special versions are available for larger antennas, such as those manufactured by Janeil, Paracclipse and Prodelin. Construction is welded steel, painted black-gloss. Weight is 55 pounds (for standard model) and all hardware is supplied. A five year warranty is supplied.

SATELLITE DATA, INC. has introduced a new impact-cushioning styrofoam LNA and electronics weatherproof cover. Claims are made for cooler operation of electronics housed in the cover, resulting in improved system performance. Distribution is through National Satellite Communications in Orlando (FL) and Clifton Park, New Jersey.

WINEGARD COMPANY (3000 Kirkwood Street, Burlington, Iowa 52601; 319/753-0121) has shown a new generation of 10 foot perforated dish. The model SC-1018 dish 'combines the (rugged) strength of a solid dish with the good looks of a mesh dish' according to the firm. The antenna has been range tested with 39.5 dB of gain and a 3 dB beamwidth of 1.6 degrees. The .040 gauge perforated aluminum has eight extruded aluminum support ribs plus an extruded rim for strength. Finish is anodized, the weight is 93 pounds, and the dish ships in quarter sections to assemble in 20 minutes by two men.



WINEGARD MODEL SC-1018 perforated aluminum dish

RECEIVERS

MICRODYNE CORPORATION (P.O. Box 7213, Ocala, FL 32672; 904/687-4633) has updated their model 1100 LPR satellite video



MICRODYNE Model 1100 LPR receiver

receiver to add automatic polarity switching and a remote tuning (control) system. Remote tuning is accomplished through rear panel mounted binary code terminals (BCD) and switching commands can come from a computer or other timing-switching instruction system. Dual RF inputs (one for each polarity) are also included. The receiver is intended for SMATV and small CATV system applications.

SAT-TEC SALES, INC. (2575 Baird Rd., Penfield, New York 14526; 716/586-3950) has introduced a new high performance TVRO receiver for home system use; their model R-7000. The unit has been designed to provide 'top of the line' performance with attention to high quality video and audio recovery for the more elaborate TVRO system installations. The unit has a Channel-Lock AFC that eliminates fine tuning, full stereo capability with a pair of subcarrier detectors each tuning 5.5 to 7.5 MHz, LED channel and signal level bar graphs, Polarotor switching interface, full tuning from 3.6 to 4.3 GHz (allowing use with Russian satellites operating below 3.7 GHz), and a 25 MHz bandwidth for video recovery. A mating DC-7000 down converter is part of the package.



SAT-TEC R-7000 high performance home TVRO receiver

Sat-Tec has also recently begun a dealer training program. A maximum of 20 dealers, per training session, will come to their Penfield headquarters for a one day session designed to teach both the technical portion of a home TVRO system and the installation procedures associated with the Sat-Tec product line. For more information, call 'Kathy' at 203/928-6555.

UNIDEN Corporation of America (15161 Triton Lane, Huntington Beach, Ca. 92649; 714/898-0576) will begin shipments of their models UST-1000 (low cost) and UST-3000 (mid-range-cost) home TVRO receivers by June according to present plans. Their model UST-5000, a top end product with infra-red controls will begin shipping in August. Uniden has also begun to deliver a line of LNA products. A line of 12 GHz (DBS) products will be available in October. UNIDEN is establishing regional distribution with full service centers, backing up dealers with full service manuals (including schematics).

TEST Instrumentation

MICRO-SCIENTIFIC LABS, Inc. (P.O. Box 995, Smyrna, Ga. 30081; 404/435-8630) has begun shipping their model DR-601 'TVRO test set.' The unit has scan tuning over 24 channels, plus variable IF gain, AC-DC operation and a host of system test procedures. With the unit, the installer has the ability to verify and check system performance at the dish as well as isolate troublesome system parts during an installation.

DISTRIBUTOR News

SATELLITE ANTENNA TRADING COMPANY (Suite 712, 5800 East Skelly Dr., Tulsa, Ok. 74135; 918/665-7850) has opened its third warehouse facility in Tulsa, Oklahoma. The facility will serve dealers in all 50 states plus Canada. SATC also recently opened its first 'retail' TVRO sales and service center in Tulsa.

SATELLITE VIDEO SERVICES (RR #1, Box 85-S, Catskill, NY 12414; 518/678-9581) has extended an invitation to all dealers to attend a no-charge technical training seminar featuring the SVS distributed IQ-160 receiver. Each training session deals with the full installation of TVRO systems and a close look at each segment of the system. Contact the firm at 518/678-9581 for information on scheduling.

FACILITIES And Personnel

Erik van der Kaay has been appointed as Senior Vice President of the AvanteK Telecommunications Division. Prior to joining AvanteK, he was with M/A COM for a period of 14 years. AvanteK has also



MSL DR-601 'TVRO test set'

announced new construction of a 90,000 square foot facility in Folsom, California. Occupancy is expected in October with more than 500 employees scheduled to work there.

Dale Sherrill is the new Director of Marketing for the satellite antenna systems portion of Prodelin (TVRO) antennas. His new responsibilities will include technical service and field applications for the antenna line.

PICO PRODUCTS has named a pair; **James McDade** as South Central U.S. District Sales Manager, and **David Crawford** as Southeast U.S. District Sales Manager.

SATELLITE RECEPTION SYSTEMS, Inc. has appointed **Bob Virden** Executive Assistant to the President, and, head Purchasing Agent for SRS of Athens, Ohio.

WESPERCOM GROUP, LTD. has appointed **Roger Boucher** as sales manager. He will be in charge of the home TVRO sales activities through the firm's five distribution centers.

R.L. DRAKE COMPANY has announced five new Vice Presidents. They include **Michael Brubaker** as VP of sales, **Merle Powell** as VP of marketing, **Steven C. Koogler** as VP of research and development, **Thomas Gardner** as VP of finance (and Treasurer), and, **Steven Morgan**, VP of manufacturing. All five are career employees of R.L. Drake.

FRANKLIN SIGNAL CORPORATION has announced the resignation of **Gerald N. Gray** as President. No successor has yet been appointed.

SHOWS and Show Circuit

EUROCAST 84 is scheduled for May 7, 8 and 9 in Basel, Switzerland. Technical sessions will include an overview of 'Cable TV and Satellite Communications' (May 7), 'The European Market for Cable TV' (May 8), and 'Future Investments in Cable and Satellite TV Marketplace' (May 9). A number of American and Canadian firms are scheduled to exhibit, including Triple Crown, Lindsay, M/A COM from our TVRO industry. For information, Cable & Satellite Television Exhibitions, Ltd., 3 Barratt Way, Tudor Road, Harrow, Middlesex, HA3

5QG in England (telephone 01-863 7726).

EXPO, an International Satellite trade show, is being planned by S.O.S. International Expositions (P.O. Box 3816, Edmonton, Alberta, Canada T5L 4J2; 403/451-3356). Firms interested in attending a Toronto area TVRO trade show 'early in August' are invited to contact S.O.S. directly.

HOME Satellite TV Conference sponsored by the University of Wisconsin in Madison is scheduled for July 30-31. Further information from Heather B. Goldfoot at 608/262-6512.

North American Satellite Trade Shows, Inc. (a division of Wespercom Group, Ltd.) has announced the fourth 'annual' **Northwest Satellite Conference** for August 13/15 at the MGM Grand Hotel in Reno, Nevada. The 1983 conference was held in Portland, Oregon. For information on attending or reserving booth space, contact Evelyn Kessler or Diane Agenbroad at 503/389-6611. **NSCA Continuing Education '84 Seminar** will next convene April 23/25 in Chicago. This program seeks to teach the basics of satellite delivered cable television service systems planning and operation and is coordinated by Larry Hannon of Eagan & Associates. Call 904/237-6106 for further information.

SATELLITE SHOWTIME is the next scheduled two hour special TVRO industry presentation, via satellite. The program, similar in concept to that in March backed by John Kaul, will air May 30th at 8 PM (EDT) on TR22, F3R and again at 8 PM on June 4th, same transponder. Nova Video Productions is putting it together and the new program is scheduled to come ahead of the June CES plus STTI (Niagara Falls) shows. Members of the industry who wish to submit questions for panel discussion should submit them prior to May 15th to Nova Video Productions, 480 East 7th Street, Richland Center, WI. 53581.

TASC (Trans Atlantic Satellite Consultancy) is scheduling a 'TASC-Expo' for June 19-21 on the grounds of the U.S. Embassy in London (U.K.). The concept is that U.S. manufacturers and cable TV programmers will be given an opportunity to set up exhibits (20 exhibits are planned). The event is being staged with the assistance of the trade development arm of the U.S. Embassy in England and is being coordinated in the United States by Edward A. Egan at 904/237-6106. In Europe, the event is being coordinated by Alan J. Simpson at (0502) 715002 in Suffolk. An intensive 'invitation only' mailing list is being cultivated to invite leaders in cable and telecommunications from all over Europe to attend and participate in the exhibits.

'84 SAT EXPO is scheduled May 7/9 in Denver under the auspices of **Channel Guide** publication. CNN Senior Correspondent **Daniel Schorr**, formerly with CBS, will kick off the event with a luncheon speech on May 7th. (Denver) Sat Expo has in the past concentrated on emerging SMATV and TVRO technologies and will this year also add program emphasis on DBS as well. Details are available from Leslie Howard at 303/761-1135 or 761-7930.

SMATV/SMATV Programming

FANTASY ADULT XXX Rated Networks planned to conduct a non-scrambled 'preview' feed period ending the night of 4th of April on SATCOM 1R (next bird **beyond** Galaxy) on TR22. The adult rated fare was to begin scrambling their service on April 5th on the same transponder. Operating hours are 12 midnight to approximately 6 AM (ET) Friday, Saturday and Monday nights. Home ('personal') decoders will be available for a one time fee of \$125 (deposit) plus an annual user fee of \$150. Film titles planned during April include 'Memphis Cat House Blues,' 'Touch Me In The Morning,' 'Every Which Way She Can,' 'Trashy,' and 'Cave Woman.' US viewers can contract for the service by calling Space Age Video Corporation at 408/559-8812. In Canada, Sigmacom Systems, Inc. at 416/666-1661.

FUTURESAT INDUSTRIES, INC. via its Texas subsidiary United Cablevision has now turned on more than 16,000 SMATV outlets in the greater Dallas area and it plans an additional 10,000 untis turned on over the coming 90 days. A projected total of 60,000 outlets, served via SMATV, is noted for the end of 1984. The systems are financed through quite complicated 'tax shelter' programs and include not only cable TV/SMATV service, but also energy management and fire and burglary protection services through the single coaxial cable system.

INDUSTRY NEWS/ continues on page 30

BACK TO BACK VEGAS SHOWS

A FUNNY THING HAPPENED . . .

The long feared, much hyped event was at hand. Two totally separate, unrelated TVRO industry trade shows were in Las Vegas at the same time. And no blood was shed.

It was the nearest thing to a direct confrontation any of us are likely to see in the much maligned TVRO 'show business' in our lifetimes. The trade association, **SPACE** (a.k.a. STIA) and Satellite Television Technology, International went virtually head to head in Las Vegas, Nevada over the period March 18 to 22. Nobody won, nobody lost.

The 'funny thing'? An exceedingly high percentage of those attending one show (**either** show) **did not attend the other!** An even 'funnier' thing? Based upon interviews conducted at the STTI show (which occurred after the SPACE show), well over half of those attending:

- 1) did not know about the SPACE show, and,
- 2) **had never heard of SPACE!**

They say that the success of a show is usually determined by the pulse of the exhibitors. If the exhibitors are 'happy,' chances are the show itself was a success. And exhibitors are only happy when they believe the money, effort and time devoted to preparing for and appearing at a show is offset by new orders they wrote or expect to

write as a direct result of the show.

Noted one prominent manufacturer of motor drive and control systems, "I actually think the two shows was a great idea. I have seen more new business, more new people in these five days than I have ever seen in my life. We worried that after the SPACE show, we'd simply end up seeing the same people again. This was definitely not the case!"

Others echoed the same observation. **Steve Bland** of Hoosier Electronics, one of the largest TVRO distributors in the United States; "We wrote more new orders for equipment here on the floor of the STTI show, the first day, than we wrote all three days at the SPACE show." Does that indicate that the STTI show was 'better'?

Not necessarily. Official attendance counts suggests STTI did, indeed, draw in a larger crowd. However, the semi-official SPACE show count, totaling nearly 7,000 people, was larger in attendance than any **previous** show this industry ever held. That simply means that SPACE got a very large and impressive crowd while STTI simply did better. Neither show really suffered from a lack of attendees.

There were striking differences between the two shows. The SPACE show, under the guidance of **Bob** and **Estrella Behar** of Hero Communications plus a team from SPACE offices in Washington, was more of an 'event.' It was staged, occasionally well staged, from the opening gun to the closing bell. Participants were 'directed' from area to area, on cue where possible, and there were scattered examples of brilliance.

Such as:

- 1) Using its carefully honed 'political connections,' U.S. Senator **Robert Dole** from Kansas officially opened the convention with both a rousing speech from the podium and a 'ribbon cutting' ceremony in front of the exhibit hall door. Dole was first introduced to the TVRO industry by pioneer manufacturer Bird-view's **Bud Ross**.
- 2) A 'Downlinking Seminar,' designed by SPACE Board Chairman **David Johnson** of Paradigm, drew nearly 500 'paid attendees.' Those attending sat through more than two days of special seminars, ending with a testing session. Those that passed the test (most did) were granted certificates of course completion which will 'certify' their competence in the downlinking arena.



SMOTHERS BROTHERS appeared, with **Joan Rivers**, for SPACE banquet.



U.S. SENATOR ROBERT DOLE (second from left) prepares to 'cut the ribbon' signifying the grand opening of the SPACE exhibit halls. Left to right, Birdview's Bud Ross, Dole, Hero's Bob Behar, KLM's Peter Dalton and General Counsel Brown.

- 3) Joining hands with the host Caesars Hotel, SPACE did their show banquet and attracted approximately 1,700 people. Borrowing Caesars headliner attractions Joan Rivers and the Smothers Brothers, the \$45 a head dinner was highlighted by a Washington to Las Vegas teleconference during which General Counsel **Richard L. Brown** hosted a number of political big-wigs who announced a pair of new TVRO related bills they were offering to Congress. The reaction to that announcement, as we shall see, was 'interesting.'

The STTI show was not dissimilar to most STTI shows; only larger. They said they 'lost' more than 100 booths, to the SPACE show, but it barely showed. The Riviera Hotel's exhibit area was virtually filled; perhaps another 25 could have been accommodated. The STTI approach is to keep the exhibit hall open long hours, based upon their belief that most people attend shows to see new equipment, make deals, and meet people. The exhibit hall is the place for all of these activities. They have also always scheduled one or two 'seminar runs' and this spring was no exception. Using a pair of meeting rooms, they presented a long and impressive list of speakers who dealt with every possible subject in the business; often more than one time.

There was a considerably different 'attitude,' on the part of the show personnel and the participants, at the STTI show. We heard numerous people suggest that the SPACE show was 'stuffy' and 'too formal.' We heard others suggest that the STTI show was like attend-



MASTER time keeper Kenny Schaffer, newly appointed VP at Quadralite, signals a ten minute completion time from box to pictures on G1.

ing 'a gigantic TVRO flea market.' A chap told us 'shopping here (STTI) is like shopping for a used car; the place is filled with flashy promotions.'

Promotions there were. **Quadralite**, the people with the 4.5 foot dish, staged a contest three times per day. They asked for people who ostensibly had never installed a TVRO dish to agree to race against the clock. Each participant started with a fully packed Quadralite antenna system; he had to unpack it and put it together and find **G1** signals. On the first day of the contest the winning time was just over ten minutes (!) although another fellow was operational in just over 8 minutes but he quit, thinking he had found G1; and he actually had F3R. That you could 'separate' F3R from G1 on a 4.5 foot dish was an amazement to many!

Other booths gave away large sums of money (\$1,000 in cash), systems and system parts, and there were dozens of collectable buttons, pins, stickers and promotional materials of every size, shape and description.

"I adjusted between the two shows quite easily," smiled one dealer. "I wore a three piece suit Sunday and Monday (SPACE show) and then I took off my suit and put on these jeans and this sport shirt (STTI show). Nothing to it!" Others did not adjust so easily. The exhibitors who had agreed to support **both shows** (totalling perhaps 30% of the booths at STTI) found logistics a problem. The original 12 noon opening for STTI on Tuesday the 20th was at odds with the original 3 PM closing for SPACE on the same day. Then SPACE 'extended' their hours to 5 PM, and declared that premature booth knock down would not be allowed. Not everyone of those caught in this posture appreciated the overlap. Many put in temporary, 'token'

NUMBER Comparisons

Category	SPACE/STIA	STTI
Attendees (claimed)	6,900	7,500 (+)
Exhibitors (from program)	161	192
Exhibit Spaces (floor count)	291	282
Printed Program:		
1) Pages	80	40
2) Advertising Pages	40	20
Regular Sessions (informational)	8	30
Special Sessions (informational)	8	0
Exhibit Hall Hours (total)	21	20

booths at STTI to tide them through the first day and then moved their more expansive booths to the Riviera Tuesday evening.

Still others, tired or not appreciative of the intra-industry wrangling,



A ROOM TO THEMSELVES/ The M/A Com Cable Home Group took all of their divisions and filled their own 'mini-show-room' for the SPACE show, approximately 50% of which can be seen here. They had two, exciting, new receivers to show off and ran out of literature sheets the first day!



LIVE DEMO of the M/A COM Linkabit VideoCipher finally made it to the SPACE show; first shown in CSD for November 1983, and promised for the SPACE Orlando show. It works.

elected either one show or the other, and skipped the twin show routine. **M/A COM**, for example, had the most expansive booth ever seen at a home TVRO industry trade show; at the SPACE gathering. Taking a full 'room' for themselves, M/A COM's **Cable-Home Group** combined antennas (Prodelin), Linkabit VideoCipher, receivers, feeds, and LNAs into a grand display that was itself larger than the first industry trade show exhibit hall area in the summer of 1979.

There was no clear winner in the 'show race.' Noted exceptions aside, those who attended both, as exhibitors, declared their reluctance to support 'either side' if there was ever this sort of conflicting schedule in the future. Most seemed willing to accept that SPACE may have been forced to stage its show close to STTI because of the 'unusual circumstances' attached to this year. Virtually each of these people, however, said that they would **not support 'twin shows' again** because in the future those 'unusual circumstances' would not exist.

It was therefore of some surprise that on March 17th SPACE's Board of Directors met to discuss future SPACE trade shows, and by vote **agreed to schedule** a 'fall SPACE show' sometime between the middle of August and the first of September, at one of three potential locations; Cincinnati, Knoxville, or New Orleans. At least some of those on the SPACE board were vocal about 'moving as close' to the STTI 'dates' and 'location' as possible; purely as a competitive action. No final decision on location nor dates has been set at presstime. The STTI fall show is scheduled over Labor Day Weekend (September 3, 4, and 5) in Nashville.

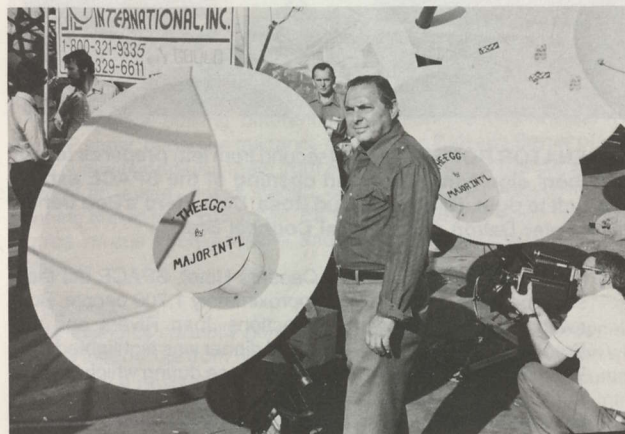


THOSE IN FAVOR ... a portion of the Board of Directors at SPACE Board meeting. Among those items they were in favor of ... was the scheduling of a 'SPACE Fall Show' someplace between August 15 and September 5th in either Knoxville, New Orleans or Cincinnati.

WHAT Was New?

Without regard to which show 'broke' the new products or product news, here are some of the highlights from Las Vegas.

An award for the 'most unusual product' might go to **MAJOR International** (P.O. Box 49332, Atlanta, Georgia 30359; 404/447-9452). Major displayed what they claimed was "the only new antenna in Las Vegas ..." and it was (they explained) "shaped like an egg ...". As you can see, it did have an unusual shape. Using a 4 foot aperture, and a splash-plate type Cassegrain feed, **'The Egg'** was producing pictures on the lot. The motor drive was a low cost (Alliance) antenna rotor and the electronics mounts to the rear. They claimed to be able to offer a 'complete system' for \$899 (up). We give them a '10'



THE EGG AND I / they came in 'late' and claimed they had the 'only really new antenna in Las Vegas.' Few would dispute their claim of being 'new in design.'



LUXOR/MAGNUM used press conference forum to explain their master distributor plan for up to 15,000 TVRO receivers per month during 1984; Hans Giner in center.

for effort and a '5' for the picture quality they were displaying.

SAW filters for TVRO applications were being promoted by **RF Monolithics, Inc.** (4441 Sigma Road, Dallas, Tx. 75234; 214/233-2903). Receiver designers with an interest in creating super-sharp IF bandpass filters should request a copy of their Application Note Number 2 ("SAW Filters For Satellite Receivers"), as well as their Application Note Number 1 ("Satellite TVRO System Considerations").

LUXOR/Magnum held a press conference to tell the world that they have gone to court to stop the marketing activities of their former (LUXOR) distributor in the United States. The LUXOR receiver, manufactured from 70 MHz down to baseband/re-modulated RF in Sweden, was **first shown** in the USA at the Atlanta show in the fall of

1982. Satellite Technology Services did an excellent job of promoting the product line to distributors and in short order it became one of the most popular products in the industry. STS had developed a working relationship with a down converter supplier since the LUXOR receiver line does not include a (Swedish built) LNC or down converter.

On March 17th LUXOR and their present 4 GHz front end supplier, Magnum, went to Federal Court in San Francisco to seek a restraining order against STS. LUXOR and LNA/down converter partner Magnum Microwave, claimed that STS has used information it learned while acting as the U.S. Master Distributor for LUXOR, to promote a new line of STS products which they alleged were being built for STS by Kyocera of Japan. At stake is whether or not STS used 'confidential information' it had access to as the Master Distributor to (as Luxor put it) "... go behind their back to create copies or functional equivalents of the LUXOR products."

On a more positive note, LUXOR sees its share of market as between 10,000 and 15,000 TVRO receivers per month during 1984; it suggests that will equal 20% of the overall market. LUXOR and Magnum are in the process of establishing approximately 12 'Regional Service Centers' and they have screened prospective distributors and dealers to select those which they feel have a long term commitment to the home TVRO business. **Hans Giner** suggests that the 1984/85 period will be one of considerable refinement of the TVRO business at the retail level, and he is directing his firm's efforts to align themselves with dealers who are willing to operate from 'store front' / shopping center locations offering a full line of TVRO-specialized equipment. Of special interest is that when the LUXOR distributor/dealer program 'shakes out,' they intend to offer all retail customers factory backed direct-service for any units in the field. Luxor's efforts in this area, with Magnum Microwave as a U.S. participant, will bear watching by those who are also searching for the right road to success.

Hands-on seminars were quite the rage and you needed a special computer listing of who was offering what, in which suite, through the five day show period. **LOCOM**, an entrant in the block-down-conversion field with a package that includes their already well known LNAs, plus (under license) their own adaptation of the **Anderson BDC** plus demodulator multiple-home systems, scheduled seminars each day from Sunday through Thursday. Dealers and others interested in learning more about low cost BDC systems were invited to the (free) two-hour demonstrations which were wisely held away from the hustle and bustle of the show floor proper. Look for more of this at future shows since the technique seemed to have good benefits for both attendees and exhibitors.

The 'Art and Science' of **Press Releases** became more refined at Las Vegas. Press Rooms at both shows were filled with releases from the hundreds of firms on hand. An example of the 'flood' on hand, from



"I JUST GOT OUT OF A WAR!" / Mike Farrell, popular star in M.A.S.H. (B.J. Honeycutt) on left with Kingsley Hastings (LOCOM) and Coop, explains why he's not certain he is ready for a new battle in the TVRO industry. 'BJ' is a major backer of LOCOM.

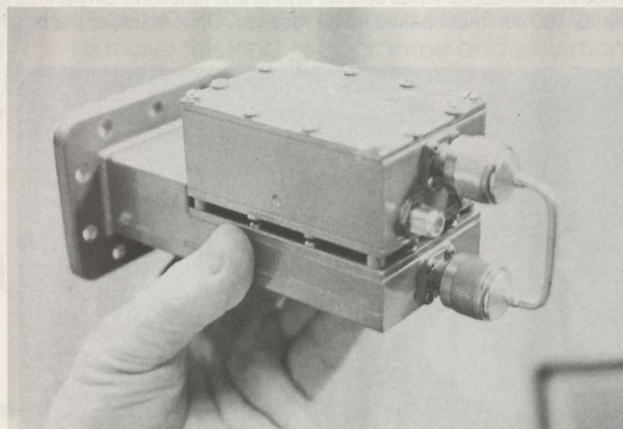
Intersat:

- 1) They announced an award's program consisting of a 1985 Cadillac Coupe de Ville as an incentive to distributors;
- 2) They announced three new executive appointments including **Al Bishop** (VP of Operations) who previously served on the White House Staff;
- 3) They announced the results of a product survey covering 1,237 of their 'Baby Q' receivers shipped (3 were damaged in transit, 5 had component failures, 4 suffered from improper dealer set up) noting that the total actual failure rate was 'under 1%';
- 4) They announced a 312% increase in sales over the same period in 1983;
- 5) They announced the appointment of former Astronaut **Eugene ('Gene') Cernan** to their Board of Directors;
- 6) They announced their use of TV channel 11, at Caesars Palace, for a 'Radio Free Space' information service, and,
- 7) They announced they had terminated their relationship with General Instruments, having been manufacturing one of the GI receivers for the firm for approximately one year.

As you can see, if you tried to keep up with ALL of the press releases from ALL the suppliers, you needed your own computer!

The battle over how much LNA gain is adequate continued with a new entrant; **Microwave Systems Engineering** of Arizona has established **Microwave Systems Marketing** (Suite 300, 1000 Lake Saint Louis Blvd., Lake St. Louis, Mo. 83367; 314/625-4830), and they were quietly showing off a new package of LNA plus down converter. The concept is this. LNC (low noise converters) have been with us since **Dexcel** made them commercially available in 1981. The LNC is a marriage of a low noise amplifier plus a down converter. Some system installers prefer having the two separate. They would also like to be able to take advantage of some of the exceedingly low noise LNAs that are coming from people such as MSE (55-75 degrees K) but cannot tolerate the less-than-50 dB gain LNAs because of gain requirements for their presently utilized down converters. A 40 dB gain LNA, for example, can be marginal (in the gain department) if you have 10 to 20 feet of 214 or 213 cable between it and the rear-of-dish mounted down converter.

MSE, through MSM, is about to offer a separate miniature-packaged down converter which directly interconnects to the 30 or 40 dB gain (but low-low noise) LNA with a piece of small, solid, transmission line (see photo). The two 'piggy-back' at the feed. Dealers will have the new ability to **swap between LNAs** and down converters **at the feed** and not feel 'constricted' as some now do with LNC swap-outs.



PIGGY BACK down converter plus low (low) noise LNA from MSE/MSM. Another dealer packaging option.

There was a smattering of interest in 'our industry' from some of the forthcoming 12 GHz programmers and hardware suppliers. One very interesting brochure from **'The Stolle Corporation'** (a subsidiary of ALCOA/ Aluminum Corporation of America) outlined the measured performance with their six foot, 'precision stamped,' petallized alumi-

num reflector. The dish is rated for both 4 and 12 GHz operation (f/D of .44) and they explain in the brochure the results of measurement testing done with the Galaxy 1 bird. Of particular interest are two bits of information:

- 1) They claim threshold or better performance with the six foot dish on Galaxy 1 when mated with a 8 dB threshold receiver and a 100 degree LNA; over 82% of the mainland U.S. (minus the state of Washington, portions of Oregon, California, Idaho, Montana, North Dakota, Minnesota, Michigan, New York, Florida and virtually all of New England);
- 2) They display a pattern which is (but) 5.2 dB down at 2 degree spacing (i.e. if you were pointed at a bird at 131 west, other birds at 129 and 133 west would be reduced in signal level by (only) 5.2 dB.

These are, we feel, 'honest' figures and they point up the lack of candor from **some** antenna suppliers who **continue to make claims for 2 degree spacing** with antennas under 10 feet (or more) in size. Remember that there must be **at least 12 dB of difference** between two interfering signals to eliminate on-screen interference which most people would find objectionable. And, 5.2 dB is a long ways from 12 dB!

How does a 'little fellow' with a product he is proud of 'break into the big time'? Many of those exhibiting at the twin shows pondered that as they watched the crowds come and go and their larger, more established competitors walk away with the large orders. **Ronald Weil of WSC Electronics** (1214 S. Weller St., Seattle, Washington 98144; 206/323-2101) typifies the frustration. Weil produces a 12 foot dish; it bears more than a resemblance to others, such as the Paradigm. Weil tells you he began as a dealer for Paradigm, ultimately decided he would manufacture his own dish. **He believes** he has a superior method for attaching the mesh to the surface struts (no 'clips'!), and claims his dish will assemble in 'half the time.' He also makes claims for the antenna's performance, including .6 dB CNR better performance than 'the competition.' He uses a .3 f/D rather than the more frequently found .4 region f/D. **"I struggle along to sell 50 antennas per month,"** he observes. "We have a good product, priced slightly higher than the big competition because our volume is low, with what we consider definite improvements in design and performance. **Now**, how do we get into the 'mainstream' of the industry"? A perplexing problem, indeed.

ARUNTA Satellite Telecommunications (P.O. Box 15082, Phoenix, Arizona 85060; 602/956-7042) feels they are at a definite advantage by 'starting late' with their Interceptor II receiver package. At first blush, you might have thought you were in the Intersat booth since the Interceptor II has definite styling and functional similarities to the IQ-160 computer based home receiver. Once inside of the booth



UNIDEN's first appearance with working hardware was at STTI portion of the show. Their initial selection of distributors will be announced soon. Contrary to what you might expect, there will be a substantial number of distributors, each servicing a relatively small region of the country.

and watching the system perform, you realize that Arunta's **Ed Grot-sky** didn't copy anything; he merely decided to attempt to 'do it one better.' The Interceptor II is best described as a 'second generation computer based TVRO receiver.' The hand held remote control is very similar to the IQ-160 hand held. The 'functions' list appears to be very similar to the IQ-160. The most notable exception is the **'sync regeneration circuit.'** The concept is that all satellite signals have some type of sync signals in the video waveform and your receiver depends upon those sync signals to provide a stable picture that does not jump or jitter. The sync signals often get 'damaged in transit' and noise that enters the sync circuits of the TV receiver will cause the picture to wobble, bob and weave. As we wrote in **CJR (CSD/2)** for February, one of the solutions to this is to use the incoming sync as a 'reference only' and then re-create (or regenerate) your own sync within the TVRO receiver. The idea here is that if you 'strip' or remove the incoming, damaged sync (loaded perhaps with noise) from the signal, and substitute sync created within the TVRO receiver, your picture has to be stable and jitter-free, **even when the signal is filled with sparklies.** A sparklie picture loaded with noise and jitters is far harder to watch than a sparklie laden picture **with no jitters.** The Arunta Interceptor II carves out new ground for the home TVRO receiver field by regenerating sync within the receiver.

The Arunta booth was packed (shown only at the STTI show) for all of the three days as hundreds, perhaps thousands, jammed in to witness the package and to attempt to make the computer memory 'fail.' Very few (if indeed, any) succeeded and when Arunta begins shipping the new model in June, there will be a long line of orders to fill.

Several major new products from **Sat-Tec** were perhaps overshadowed by a new determination to be an industry leader once again, as expressed by firm founder **John Ramsey.** Ramsey's Sat-Tec company began producing products for the TVRO field in late 1979; they were the original supplier of the Clyde Washburn (now Earth Terminals) receiver. By the month of May, 1980, Sat-Tec had designed a low cost (\$995, which **was** low cost at the time!) receiver for home TVRO use. Ramsey's approach then, and in subsequent years, was to squeeze maximum performance out of a minimum of component parts. He quickly became the acknowledged leader in eliminating parts, and finding \$0.07 replacements for \$7.00 parts that others were using. More than any other receiver manufacturer, Sat-Tec, led by John Ramsey, drove down the price of home TVRO receivers. Their R2-A and R2-B receivers were a legend. Thousands of dealers have sold Sat-Tec through the years.

Many people have been after John Ramsey for several years to take his very creative talents and turn them loose on 'high performance' rather than 'low cost' TVRO receivers. During the summer of 1983, a Korean firm began importing into the United States an even 'cheaper' (as well as lower-cost) version of a Sat-Tec receiver. That apparently had a profound effect on Ramsey who responded with an entire new series of receivers at Las Vegas. The new Sat-Tec **SR-3240** 'satellite block receiver' is the firm's first product in the rapidly expanding block down conversion area. Using the SR-3240 and the companion DC-3240 block down converter, virtually any number of independent receivers can be 'stacked' onto the same antenna for individual viewer choice of programming. The 3240 product is not out to compete with the \$150-\$350 price range low-cost block down conversion demodulators; pricing in the \$500 region (with BDC) immediately sets it apart. However, what really tips the scales is the video quality; a very unique (patent applied for) demodulator displayed some of the cleanest video seen in Las Vegas. Other unique features include detent tuning, Polarotor 1 compatibility, and an automatic polarity feature that switches polarity when the channel is changed. The automatic scanning feature checks both polarizations and a unique approach to fine tuning all but eliminates that problem. Full matrix stereo is built-in as is Westar 'format' change.

The most impressive part was the quality of the video (a 30 MHz wide video IF means you get all of the 'detail' that is transmitted), a total lack of 'tearing' on sharp transitions from light to dark (such as lettering supered on the screen), and the obvious sensitivity of the package (an 8 dB threshold is claimed).

Certified Performance at 2°



Take
your
choice!

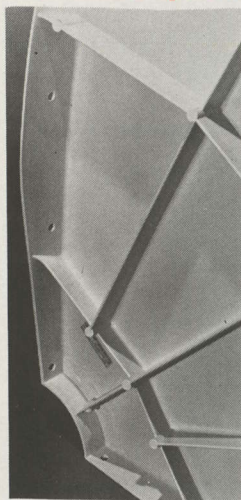


When 2° spacing becomes a reality in a few years, what would you rather tell this year's customers...

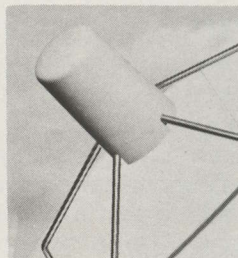
"I'm sorry that your reception is so poor. But, there's nothing I can do about it. Your dish just can't handle 2° spacing."

"Good thing we went with a Channel Master dish back in '84. Your picture is as good today as the day we installed your dish."

Built to perform! Built to last!



Precise SMC molding plus machine-aligned and drilled bolt holes produce a more accurate parabolic shape for better reception—and gives you a 4 petal dish that's faster to assemble!



The handsome scratch and mar-resistant textured surface of our SMC dish diffuses reflective heat that can damage the feed assembly.



The back of our SMC dish shows how unique it really is. Support ribs are molded in right from the start. No need for extra bolt-on supports or oversized back frames here!

Every 10 ft. and 12 ft. system sold by Channel Master dealers comes with written certification that it will deliver the same fine reception under 2° spacing that it does today. (8 ft. system certification is conditional on cross-polarization of adjacent satellites.)

Dealers give this written guarantee to their customers because we give it to them. You'll give the same guarantee to your customers when you use Channel Master dishes.

If you want to know how our engineers can let us make this kind of guarantee and why many other dish suppliers can't, or shouldn't, send us the coupon below and we'll send you the facts.

Phyllis Fisher
Channel Master Division of Avnet, Inc.
CSD/2 484, Ellenville, New York 12428 (914) 647-5000

Tell me more about CM 2° Certification
(Attach business card, if appropriate)

NAME _____

BUSINESS _____

ADDRESS _____

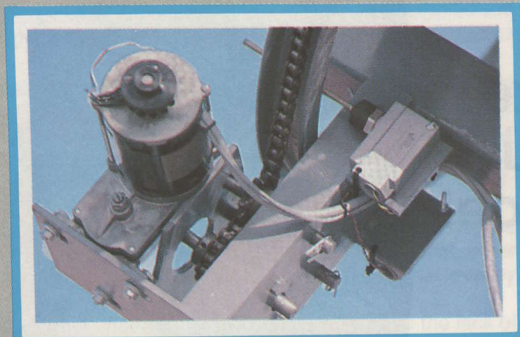
CITY _____ STATE _____ ZIP _____

PHONE (_____) _____

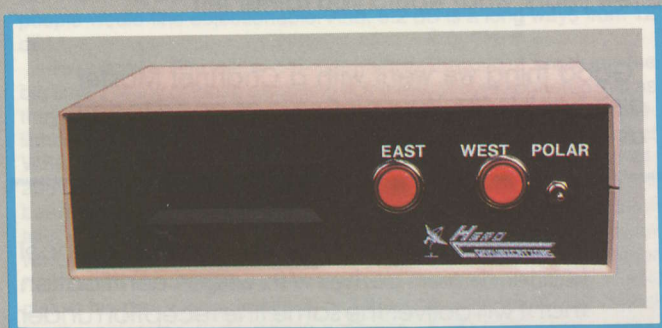
Please check one: ☐ Consumer ☐ Dealer

Channel Master®
DIVISION OF AVNET, INC.

THE HIGH



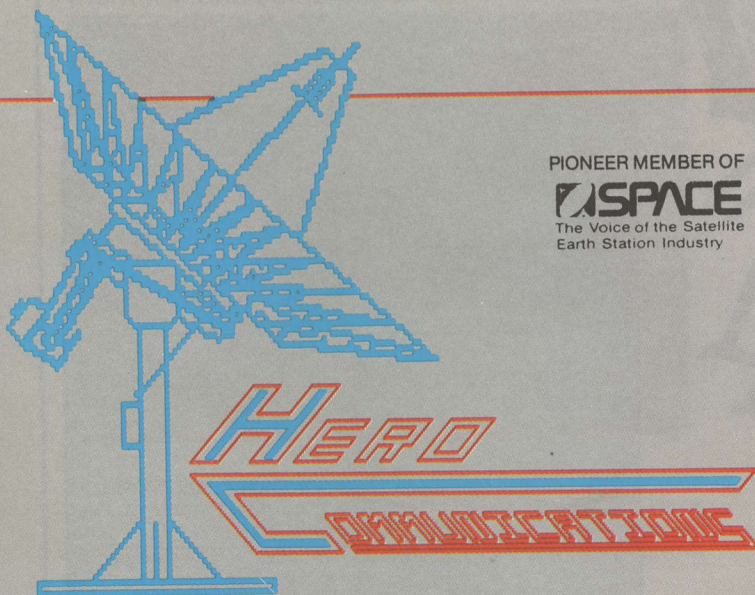
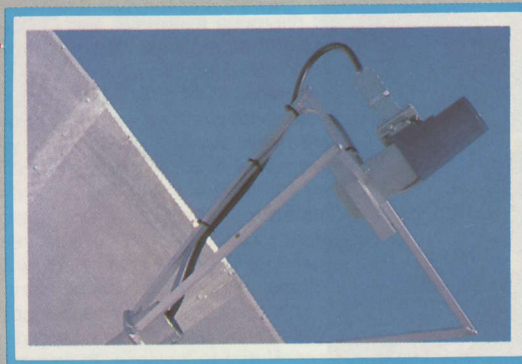
A.



B.

- A. Horizon to horizon motor drive. (uncovered)
 B. HERO digital remote control antenna positioner.
 C. Adjustable feed and LNA mount.

THE HERO 13 is a full foot larger than the tinker-toy 12 footers. It has strength no tinker-toy antenna ever had, and performance that runs 'rings around the toy like competition! A full foot bigger — a fat 1 dB more gain than the best of the 12 footers. And complete; a horizon to horizon motor drive (your customer's won't miss the new F2R, G2, birds with a Hero antenna!) that brings in true world-class pictures from the FULL arc! Dealer friendly. A complete install kit; special drills, tools are packed with each antenna. You need NOTHING but a 1/4" hand drill, screw driver, and adjustable wrench. Everything else is included. MOTOR DRIVE, digital read out control (with built in Polarotor control) and a self-proofing feed; it checks itself and you KNOW you have maximum gain! No cables to prepare; our MASTER CABLE has all connectors in place; everything 'snaps together' in record time! You can actually install a HERO 13 as fast or faster than the tinker-toy 12 footers.



PIONEER MEMBER OF
SPACE
 The Voice of the Satellite
 Earth Station Industry

And we saved the best part for last. The price! As low as \$1,195 dealer net in small quantities for a 13 foot system that goes together faster, works better, and looks like a professional installation. Tired of playing with tinker-toy antennas? Graduate to the professional ranks with the HERO 13. If 13 foot of massive gain is too big for your area, HERO 10 offers all of the same dealer and user friendly features in a ten foot, high performance dish; at the even lower price of \$995 for a complete 10 ft. system. A few select dealerships are still available.

*The HERO 10 ft. and 13 ft. system includes: antenna • polar mount • horizon to horizon motor drive • digital remote control box • 100 ft. of cables with connectors • electromechanical limit switches.

2470 W. 8th Avenue • Hialeah, Florida 33010 • Phone: (305) 887-3203 Telex 51-4712

PERFORMERS

FROM HERO



SUPER TENNA 13'



SUPER TENNA 10'

MAKE YOU LOOK LIKE A PRO.

KNOWN the world-around for superb quality international-grade 'World Class' high performance TVRO systems, HERO is now offering the first truly high-quality, **professional class** domestic TVRO antenna systems. This is no panty-waist, tinker-toy antenna that 'clips' together; This is a professional antenna, built with the technology and experience that only HERO brings to the marketplace. It is significantly better, significantly higher in performance, and significantly more profitable for you to install!

TWIN SHOWS/ continued from page 12

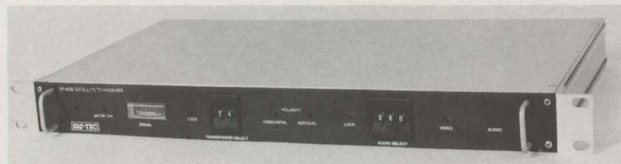
Not satisfied to introduce the SR-3240 BDC package, Sat-Tec also displayed a commercial version, the **SR-8000**. Like the 3240, this unit utilizes a 300 MHz PLL demodulator in conjunction with the 400-900 MHz IF. However, the model 8000 is also available with a BDC IF output in either the 270-770 range (AVCOM, S-A, Microdyne compatible), 900-1400 or 950-1450 MHz (compatible with DX and others). The commercial version uses a DRO (Dielectric Resonance Oscillator) system, not unlike the AVCOM BDC, for example. This insures an exceedingly high-stability receiver down conversion system which should be a set and forget experience. Price range for the 8000 package is \$800.

What Sat-Tec has done is to apply its own unique ability to make things work with fewer parts in an entirely different manner; it has decided that it **can produce** superb quality reception gear for prices that largely fall in the 60-70% region of other high quality units.

Dealers who have been romanced by the glamour of the low-cost BDC systems, and their obvious advantage to allow shared reception from a common dish, will find the new Sat-Tec BDC products of considerable interest. Now, perhaps for the first time, you can offer both 'shared dish' and 'reasonable price' packaging together with unexcelled performance. You almost need to see the performance to believe it and we hope that Sat-Tec will remain committed to the quality which was apparent in the Las Vegas demo units; Sat-Tec Sales, Inc., 2575 Baird Road, Penfield, New York 14526 (716/586-3950).



SR-3240 from SAT-TEC brings 'class reception' to BDC system design.



SR-8000 is commercial version of SAT-TEC's latest entry into the BDC world.

If modulators for large home systems or commercial installations have been giving you fits, there are several new models around that deserve your study. We wrote in the March issue of **CSD** that USS/Maspro, through **United Satellite Systems**, would be showing off a new 'any-channel/switchable' VHF modulator for commercial installations, covering VHF channels 2 through 13 plus mid-band. They did, at Las Vegas. Also on hand at Las Vegas was a very similar product from **General Instrument** (RF Systems Division); (4229 South Fremont Ave., Tucson, Az. 85714; 602/294-1600). GI had a nifty, new, rack mounting 'any-channel/switchable' VHF and mid-band modulator, as well. There was one primary difference between the USS and the GI units; the USS has three **separate** output, bandpass filters; one-each for low VHF, mid-band, and high-VHF. The GI unit, on the other hand, has a **single output bandpass filter** and it is dip-switch-tuned to the appropriate output channel by the user. Prices on both are under \$600 for dealers.

A new name in the modulator business was **Nexus Engineering Corporation** out of Canada (4181 McConnell Drive, Burnaby, BC V5A 3J7; 604/420-5322). Nexus had a host of models including their VM-1 (channels 2 through GG), and VM-5 (VHF channels, plus) units. The VM-1 is a totally commercial grade modulator, rack mounting, with +54 dBmV output capability, SAW filtering with adjacent channel

operation practical. The VM-5 is a lower output (+35 dBmV) unit designed for adjacent channel operation. The VM-5 can be rack mounted (optional) with three of the individual channelized units occupying a standard rack width by 1.75 inches high. Prices for TVRO dealers vary from \$315 for the VM-5 to a high of \$692 for the hyperband (i.e. GG) channels in the VM-1 format.

Unable to resist the movement to smaller dish antennas, **KLM** introduced an 8 foot 'Mini-X' mesh surfaced dish. The f/D is .34 (like many smaller dishes) and a low-cost manual crank drive is standard although motor drive is available. The (new) **SKY-EYE VIII** receiver which has a synthesized quartz tuning approach to stable operation was also on display. KLM, like many other suppliers, has come to recognize that the down converter is virtually always outside where temperature extremes can cause the oscillator circuit to 'drift' with temperature. This causes the receiver to move off of or between channels and naturally your customers are not happy with having to follow the signals across the dial. Quartz (as in crystal control) synthesized tuning eliminates all of those hassles.

Lowrance Electronics, Inc. (12000 E. Skelley Drive, Tulsa, Oklahoma 74128; 918/437-6881) also took the block down conversion plunge but they did it with a clever eye towards marketing and system upgrading. The concept is that the customer can begin life with a standard System 70 receiver, using the standard down converter approach. Then the customer can come back for an 'upgrading module' which will turn his system into a block system capable of feeding virtually an unlimited number of separate receivers (or homes), with suitable RF plant distribution equipment. Finally, Lowrance has made it possible for the system to be compatible with both 4 GHz and 12 GHz signals and the customer can switch between the two with a



B.E.S.T./ may well have been 'best' 9 foot surface at Vegas. Creator Pat Spicer (left) and business partner Norman Bruner. Can they maintain quality when the quantity shoots up?

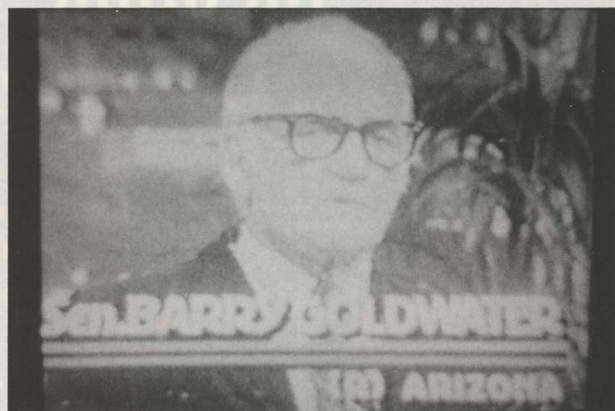
single switch. This is one of those 'better ideas' which others are sure to look into as the marketplace separation between 4 and 12 GHz 'blurs' and more and more customers want the assurance that their present-day 4 GHz system will be '12 GHz ready' when suitable programming becomes available on 12.

In the 'you had to look to find them' department, a pair of antennas tucked away out of the mainstream at STTI deserve mention. A 9 foot square antenna, created by a small firm in Nebraska (**B.E.S.T. Satellite**, P.O. Box 166, David City, Ne. 68632; 402/367-6044) had perhaps the best pictures on the crowded lot for an antenna of this aperture. The secret, if you can call it that, is old-fashioned care to attention and detail. The antenna surface on the show antenna displayed was virtually perfect and the pictures proved that it had superior performance. Like so many small production antennas, the ultimate test is when the manufacturer moves from 3 per day to 30 per hour. Can he hold the highly accurate surfaces that result in superior performance when his sales manager is screaming at him for more and more production? Maybe they should 'stay small' and set their sights on providing a very limited number of truly superior reflector surfaces. **Being big isn't everything.**

In the spun dish arena, the **Genesis VIII** 8 foot from **Mid-Tech Communications** (Route 2, Box 65, Highway 14 East, Richland Center, Wi. 54581; 608/647-4763) had another of those 'virtually perfect' surfaces. There is no question that quality spinning of aluminum is the right approach for a highly accurate surface. The unfortunate part is that 8 feet is about as big as you can spin, properly, and ship, without going to specialized shipping containers and your own transportation system. There were many good spun antenna products in Vegas; this was one of the best.

SPACE's 'Surprise'

Rumors that SPACE was going to pull a rabbit out of the hat on Monday evening at their banquet had been circulating for weeks. Clearly, amidst all of the turmoil and unpleasantness associated with the twin shows, a rabbit would have been welcome relief.



SENATOR GOLDWATER via satellite spoke to the attendees at the **SPACE** banquet and explained **Senate Bill S.2437**. The House 'companion bill' co-sponsored by Representatives **Gore (D/Tn.)**, **Tauzin (D/La.)** and **Rose (D/N.C.)** has been assigned the number of **H.R. 5176**.

It turned out this way.

A pair of new bills have been introduced into Congress. The two bills were created by SPACE's General Counsel Brown and Finn, and both have the same general direction. They would, if passed into law, establish 'viewing rights' for home TVRO system owners. At the present time TVRO owners have uncertain rights since the most recent legislation dealing with the right to tune in things in the air was initially enacted back in 1934.

During the SPACE banquet, appearing from Washington, DC,

TWIN SHOWS/ continues on page 20

LUXOR	Prodelin	KLM	CHAPARRAL	Scientific Atlanta	Omni Spectra
Commander	AIMERS BY DRACO	WILSON	INTERSAT	MACT	COMFER



The key to your business is our service

Satellite Video Services

NORTHEAST'S LEADING DISTRIBUTOR

WITH 2 STOCKING LOCATIONS TO SERVE YOU

RR #1 — BOX 85-S

CATSKILL, NY 12414

(518) 678-9581

RFD #2, HARRIMAN HILL RD.

RAYMOND, NH 03077

(603) 895-3182

FACTORY AUTHORIZED SERVICE • DEALER TRAINING SEMINARS

Satellite Financial Planning brings Bank Rate Financing on home TVRO systems.

...Another Bill Young Company!

...the Most Complete Three Year
Extended Limited Warranty Protection
Plan. (Only Four Exclusions)
Convenient, Just Call
1-800-932-DISH To Place
Your Credit Order



\$200 BONUS

TO DEALERS WITH
FINANCING AND EXTENDED
WARRANTY PACKAGE.

- 100% Financing—No Down Payment!
- 24 Hour Credit Approval in Most Cases.
- Flexible Payments—Revolving Payment Plan
36—48—60—72 Months or **LONGER**.
- Bank Rate Financing Available Less Than 16.99%*
- Complete Three Year Extended Limited Warranty Protection
Package (Only Four Exclusions).

For more information please call Monday thru Saturday 9:00 a.m.—8:30 p.m. EST or send in coupon.
Call Toll Free 1-800-932-DISH—All 48 States. In Canada call (301) 964-1990 or 964-1991

FINANCING BY
FIRST NATIONAL BANK
OF WILMINGTON
AND AFFILIATES

The extended limited warranty and
protection plan provided by
Satellite Earth Station Protection
Company, Inc. insured by
RELIANCE INSURANCE COMPANY.

Dealers...

**NOW FOR THE FIRST
TIME YOU CAN**

Start!

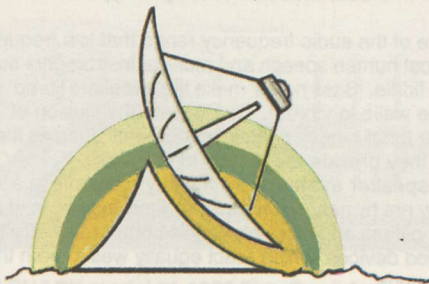


EFFECTIVE MARCH 1, 1984
"WARRANTY NOW OPTIONAL"
"The Extended Warranty Protection Plan is now completely optional. Loans for TVRO systems and other electronic equipment are available, independent of the Warranty coverage."

ADVERTISING 100% BANK RATE FINANCING* PLUS ALL PARTS & LABOR GUARANTEED FOR THREE YEARS.**

- No Down Payment
- No Collateral Needed
- Up To 6 Years and Longer Repayment Period
- Flexible Payments***
- Low Monthly Payments****
- No Complicated Paperwork*****
- All Current TVRO Equipment Covered Under The Warranty Program

*RATE AS OF OCTOBER 5, 1983.



SATELLITE FINANCIAL PLANNING CORPORATION

1000 Century Plaza, Suite 320
10630 Little Patuxent Parkway
Columbia, Maryland 21044

*Upon Approved Credit

***Customer Can Change Mode of Payment Without Penalty

**\$40.00 Deductible — See Sample Warranty

****Illustration: A Typical \$2500.00 System with 3 Year Warranty — \$65.50 Per Month

*****Simply Dial 800-932-DISH Instantly Starts the Credit Approval Process

SATELLITE FINANCIAL PLANNING CORPORATION

1000 Century Plaza, Suite 320
10630 Little Patuxent Parkway
Columbia, Maryland 21044

Please send me information regarding financing and extended limited warranty for the home TVRO user.

Name _____ Telephone() _____

Address _____ City _____

State _____ Zip Code _____

TWIN SHOWS/ continued from page 17

SPACE's former Vice President Richard L. Brown hosted a teleconference link-up which banquet attendees witnessed on big screen projection systems placed in the two banquet rooms. Appearing on the 'private' telecast, in addition to Brown, was U.S. Senator Barry Goldwater and Congressmen Albert Gore, Billy Tauzin and Charlie Rose. Goldwater, Tauzin and Rose appeared at the SPACE Orlando gathering.

The Senate bill is the simplest, although both are related. It would affirm the right of backyard TVROs to receive satellite programming and insure that no 'copyright provisions' applied to unscrambled reception. In other words, if a programmer using satellite **did not elect to scramble his service**, he could **not look** to U.S. copyright law for any assistance in policing reception of his programming.

The House bill includes these provisions plus it also addresses the matter of scrambled transmissions. The House bill seeks to 'force,' by law, those programmers who do scramble to make their scrambled programming available to home TVRO system operators. The bill would look to the FCC as a mediating body to settle rate-disputes should a scrambled programming abide by the law (and make his services available), **but**, at the same time refuse to set 'fair and reasonable rates' for access to his scrambled programming.

Reaction to the bill was surprisingly subdued. At least in Las Vegas. We heard almost no discussion of the 'surprise' or what the bill might mean to the industry in the three days following the banquet-surprise. **Coop comments** on this in the May issue of **CSD**.

SPACE's Non-Surprise

If the SPACE Board of Directors seemed determined to stack another trade show on top of STTI this fall, they were more responsive to industry criticism concerning the 'appearance' of improprieties.

Leading off the action at the Board meeting March 17th was the formal introduction of newly engaged General Manager and VP **Chuck Hewitt**. Hewitt carries the formal title of 'Executive Vice President' and he has in the past served as Executive Director for the National Space Institute. Most recently, Hewitt served as Director of Corporate Communications for Fairchild Industries.

Hewitt's managerial role at SPACE will include everything previously done by the law firm of Brown and Finn, with the exception of handling any of the legal work. His role as a 'lobbyist' for the trade association has not yet been defined. He is establishing separate offices for SPACE, and studying staffing requirements. We'll meet and talk with Mr. Hewitt more intimately in the **May 15th** issue of **CSD/2**.



CEREMONIAL passing of the control; former VP Richard L. Brown (left) introduces new Executive VP Charles C. Hewitt at SPACE session in Las Vegas.

The matter of Board disclosure of trade association finances was also discussed. A new pamphlet, prepared by Brown and Finn, related the finances of the trade association from the inception of the trade association (1980) through the current (projected) year. A copy of the **'Fourth Anniversary Report To Membership'** should be available to any member (write SPACE, STIA, 1920 N Street N.W., Suite 510, Washington, DC 20036).

Resolution of the pending lawsuits instigated by STTI were debated but hardly resolved. A motion to establish 'show dates' for three years in advance was adopted. Outside of the Board, numerous parties were attempting to act as 'negotiators' between the warring SPACE and STTI factions but few saw any opportunity for reconciliation prior to the scheduled August appearance before a Federal judge.

Finally, SPACE's Executive Committee had decided, prior to the SPACE March 17th Board meeting, to 'change the name' of the trade association from 'SPACE' to **Satellite Television Industry Association**, or 'STIA' (S.T.I.A.). The reason for the change, as explained by Counsel, was the 'apparent loss of the name within the District of Columbia' to Rick Schneringer and STTI.

PROCESSING TVRO AUDIO

In the first part of this series we investigated what can be done with external-to-the-TVRO receiver hardware to clean up **pictures** which are not 'studio quality.' In that broad overview we came to the conclusion that **other than** recreating sync (for weak transponders), adjusting video voltage levels (for splitting the output to multiple points), and adjusting the color phase or 'hue,' we were really engaging in a game of 'cover up'; trying to make a mistake in receiver design less objec-

tionable to the consumer viewer.

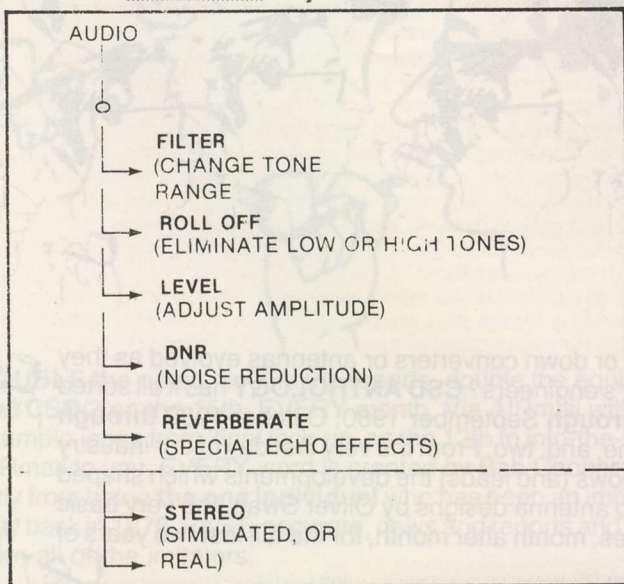
If the video offers limited (but important) opportunities for post-receiver processing, the audio holds out more hope. Because the audio signal is not nearly so complex a waveform, you can do more with it in the post-receiver area and not be hurt by either costs or technical performance. Looking at the options available to the TVRO dealer, we have the following six areas of interest.

- 1) **Filtering.** The audio 'range' coming from a TVRO receiver should be in the region of 50/100 Hz to 12,000/15,000 hertz. This is roughly comparable to what you would expect from a monaural FM broadcast station through a typical home tuner/amplifier.

It is the nature of the audio frequency range that low frequencies correspond to most human speech and musical instruments such as the oboe or bass fiddle. 'Bass notes' make the speakers 'jump' off the floor or cause the walls to vibrate. They create the illusion of 'being there.' The higher tonal ranges contain instruments such as the clarinet or flute and they provide the 'depth' in the audio.

Speakers or **speaker systems** are the key elements in a sound system since they are by nature devices that 'limit' the range of sound reproduction. Amplifiers and other electronic components are by nature 'broad banded devices' which react equally well to both the low and high tone sounds.

As a general rule of thumb, large speakers enclosed in physically large enclosures or cabinets do a better job with the **low** tones. And smaller speakers enclosed in smaller enclosures do a better job with



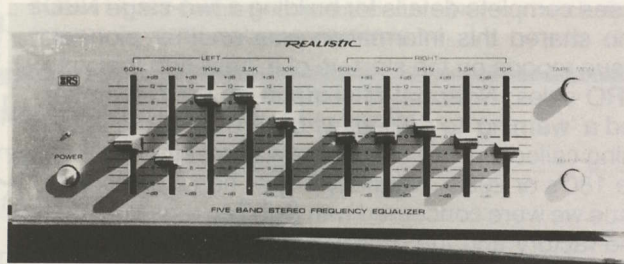
the high tone range.

A user of sound can use a selective filtering system (such as the **Radio Shack** [model] 31-1988 Five Band Equalizer) to **selectively** raise or lower various **parts** of the audio spectrum. In a small speaker system, you would typically adjust the slide controls on the equalizer to raise the lows and reduce the highs, for example. Controlling which part of the audio spectrum gets to the amplifier system at what 'levels' is a way of modifying the sound content from the speakers.

Sound equalizers are actually adjustable audio filters. They are available in a wide range of prices, with a wide assortment of equalizing controls and networks. Unfortunately, not all listeners will perceive the sound they hear in the same manner. A roomful of people can pretty much agree on the quality of a picture they are looking at because the human eyes are quite similar in perception. Human ears vary widely and what is one person's 'bass' is another person's 'annoyance.' Coupled with this is the fact that a speaker system does not function as a stand alone device; it is severely affected by the room in which it operates. A room has a 'resonance' all of its own and this resonance changes through the audio spectrum. Merely closing a drape over a window can cause a dramatic change in the way people listening to music in that room perceive the quality of the sound.

For these and other reasons, equalizers have become very popular units since they give the listener the opportunity to modify the way 'the system sounds,' to his or her ears, in the room where the system will be used.

- 2) **Roll Off.** An early form of equalizer was the tone control found today on many auto radios. The tone control works only at the extremes of the audio spectrum; the high and low **ends**. By filtering out one or the other (or being neutral, in the middle), the



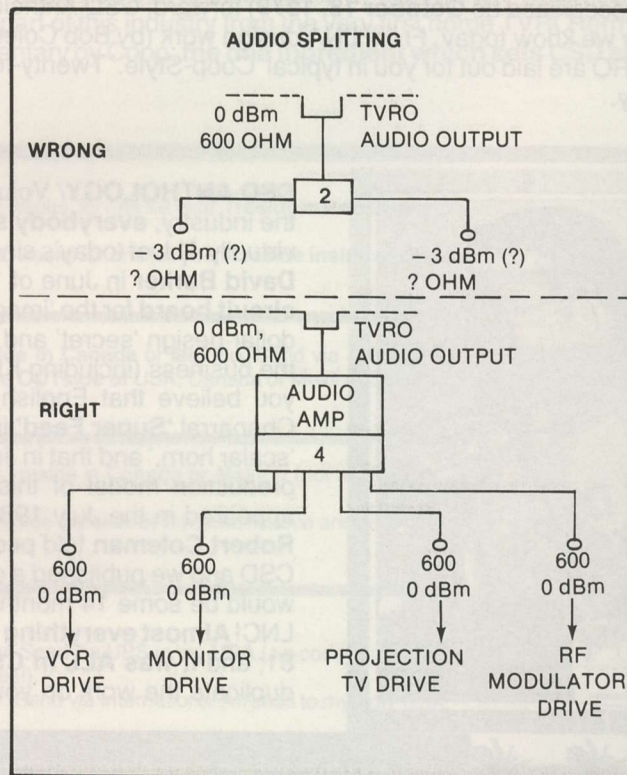
RADIO SHACK model 31-1988 Five Band Audio Equalizer is one modest-cost way to change the sound system performance and compensate for inadequacies in either the speaker system or the origination programming.

particular music passages or sounds that 'excite' individual listeners can be brought out.

Tone controls are usually found on small audio systems which lack the capacity to function with large speaker systems. They are sort of a 'poor man's equalizer' and their usefulness in a sophisticated TVRO system are minimal. At best they cover up audio blemishes created by the system's design shortcomings.

- 3) **Level.** A volume control seems like a simple enough gadget. However, many TVRO receivers have a very low-level audio output and to make the sound levels required for comfortable listening, an external audio amplifier is required.

Volume or level control on a sound system is straight forward. If the audio from the TVRO receiver is going to be used to feed or drive several after-units (i.e. a VCR record deck, a speaker system, and a modulator), some care must be exercised in being certain the very low volume found at the TVRO receiver proper is not exhausted before the jobs are done. Few receivers can handle feeding two or more separate 'after-units' **without additional amplification**. However, you do not want to amplify 'very much' since a VCR, for example, or a



modulator, only requires a relatively low level to begin with. The answer is an audio **pre-amplifier**; a low-in-level single input, multiple output audio amplifier. The **USS/MASPRO** model **VBS4** is a good example of a combination unit which offers both four audio output stages (with amplification) as well as 4 video outputs to drive the video equipment. Remember; when you want to 'split' or share the audio from the TVRO receiver with several points, you must be concerned that the level you create to share will not be excessive. This means you must do your splitting (after nominal amplification) **before** you get into the 'high power' region.

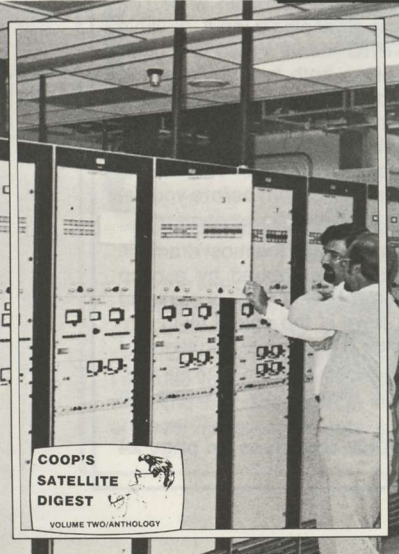
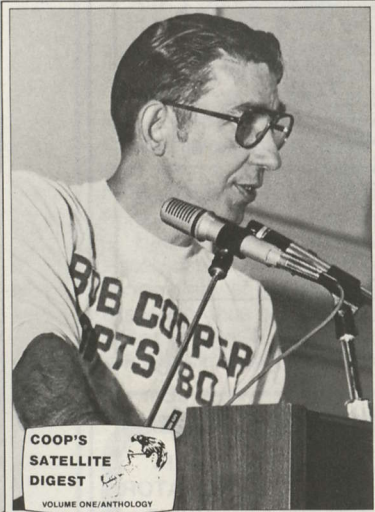
- 4) **DNR/Dynamic Noise Reduction.** Perhaps the most dramatic improvement in audio processing was created by a chap named Ray Dolby who discovered how it was possible to reduce the noise **and** raise the level of the sound all in one circuit. From his 'Dolby' and 'Dolby B' and other variations of the (patented) circuit has come a whole field of followers who attempt to make the sound more pleasant by reducing the

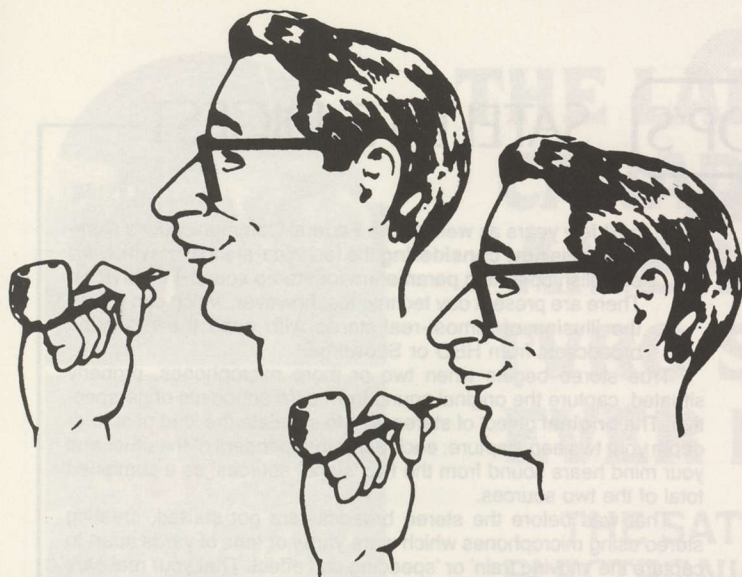
COOP 24 TIMES!

DO THE BASICS of home TVRO baffle you? Do you wonder how LNAs or down converters or antennas evolved as they have? Do you understand why **Taylor Howard** is the 'dean' of the industry's engineers? **CSD ANTHOLOGY** has it all sorted out for you. We have taken the first two years of **CSD** (October 1979 through September 1980; October 1980 through September 1981) and we have created 'CSD ANTHOLOGY'; Volumes one, and, two. From the very first day of our industry (officially recognized as **October 18, 1979**) forward, CSD Anthology follows (and leads) the developments which shaped the industry we know today. From LNA design work (by Bob Coleman) to antenna designs by Oliver Swan, the very basic roots of TVRO are laid out for you in typical 'Coop-Style.' Twenty-four times, month after month, for the full first two years of our industry.

CSD ANTHOLOGY/ Volume One is a true collector's item. During the first year of the industry, **everybody shared their secrets!** Can you imagine that the basis for virtually ALL of today's single-conversion receivers was told to the world by designer **David Barker** in June of 1980; he actually printed in CSD **his schematic and his circuit board** for the 'image rejection mixer'! He, in effect, gave away a multi-million dollar design 'secret' and that promptly launched a myriad of receiver suppliers in the business (including KLM, which Barker later became associated with). Or, can you believe that English experimenter **Steve Birkill** detailed the basis for the Chaparral '**Super Feed**' in CSD for February 1980, telling everyone how to build a 'scalar horn,' and that in June of 1980 Taylor Howard and Bob Taggart introduced a production model of this same feed design (our first review of the Chaparral appeared in the July 1980 issue of CSD)? How about this one. South Carolina's **Robert Coleman** told people **how to build an LNC** in the January (1980) issue of CSD and we published a circuit board designed by Coleman for this purpose; and it would be some 14 months later when Dexcel displayed the first production model LNC! **Almost everything you use and know today** started sometime in 1979-80 or 81; and it was **ALL in CSD**, not only first, but with sufficient detail that you could duplicate the work on your own work bench!

CSD ANTHOLOGY/ Volume Two is everybit as exciting as Volume One. Starting with the October 1980 issue, we see complete details for building a two-stage NEC GaAs-FET LNA. The fellow who shared this information was another pioneer; **Norman Gillaspie**. The same issue reports on the start-up of a 'new' firm that was going to revolutionize home TVRO sales; **National Microtech**. In the November 1980 issue Taylor Howard issued a 'warning' to dealers who were installing LNAs without bandpass filters; something called 'out of band' noise was making the then popular 120 degree units act like 180's or 200's. Naturally Taylor had a solution to the problem! In the December issue we were concerned with **Sat-Tec** receivers that 'lost their alignment' between the factory and the dealer; we told readers how to 'field-align' a Sat-Tec R2A receiver for best pictures. In February of 1981 we first reviewed the **Washburn/Earth Terminal** receiver. Way back ... in February 1980 CSD carried the first advertisement for the Washburn (Earth Terminals) receiver; **only \$2995!** Terrestrial interference reared its ugly head in 1981 and in the July CSD we explained what it was and how it could be cured. **Microwave Filter Company** read the report and started producing 'TI' filters; once again, **CSD got somebody started in the TVRO hardware business!** And so it was issue in . . . and issue out, during all of 1979, 80 and 81; **people helping people** start a brand new industry.





DOUBLE COOP!

DOUBLE the news, double the reports, double the equipment reviews. **CSD** is **TWICE** per MONTH with **CSD** on the first and **CSD/2** on the 15th. **EVERY** month. Via **AIRmail** with the fastest turn-around in the home TVRO industry. **CSD/2**, for example, goes from 'final lock-up' on the 12th to into-the-mails on the 15th! **FRESH** news, while it is still news, delivered via **AIRmail** to you. **EVERY** word is created by Bob Cooper; every report has that special 'touch of experience' which comes only from being **the one individual** who has been an important part of this industry from the very first home TVRO terminal way back in 1976. **FAST**, accurate, news and reports and commentary by Coop; **the one ingredient which sets CSD apart** from all of the imitators.

YE COMPLETE COOP ORDER FORM

CSD MAGAZINE (24 issues per year)

- **\$75 US FUNDS** ENCLOSED for 24 issues of **CSD** (and **CSD/2**), every two weeks, for one full year. **I reside inside USA** and require **AIRmail** delivery.
- **\$65 US FUNDS** ENCLOSED for 24 issues of **CSD** (and **CSD/2**), every two weeks for one full year. **I reside inside of USA:** send **CSD** via **AIRmail**, **CSD/2** **surface mail**.

- **\$85 US FUNDS** ENCLOSED for 24 issues of **CSD** (and **CSD/2**); **I reside in Canada or Mexico**. Send via **AIRmail**.
- **\$100 US FUNDS** ENCLOSED for 24 issues of **CSD** (and **CSD/2**); **I reside OUTside of USA, Canada or Mexico**. Send via **AIRmail**.

- **\$60 in US FUNDS** enclosed for 12 issues of **CSD** (1st of month) **ONLY**; I reside in **Canada or Mexico** (not available in USA).
- **\$75 in US FUNDS** enclosed for 12 issues of **CSD** (1st of month) **ONLY**; I reside **outside of** Canada, Mexico and USA (not available in USA).

CSD ANTHOLOGY (First 24 issues of CSD, bound in two volumes)

- **\$100 US FUNDS** ENCLOSED for both Volume 1 and 2 of **CSD** Anthology. Send via **UPS** to my **USA** (zip coded) address (Note: Must be street address; **UPS** does not deliver to post office boxes!).
- **\$125 US FUNDS** ENCLOSED for both Volume 1 and 2 of **CSD** Anthology. Send via **International AIRmail** to my **non-USA** address.

ASTI HANDBOOK ('The' Authoritative reference system to Terrestrial Interference)

- **\$125 US FUNDS** ENCLOSED for my personal copy of the **ASTI Handbook/Study Course** on eliminating **TI** (Terrestrial Interference) by Glyn Bostick. I understand **Coop** recommends it!
- **SURE I TRUST** **Coop's** recommendation but **\$125** is a bunch of change for a book/study system. Send me something that explains it in detail, with no obligation to me.

COMPLETE so we can fill your order promptly!

MY NAME _____

COMPANY (if applicable) _____

ADDRESS _____

TOWN/CITY _____ STATE _____ ZIP _____

NOTE: Make check/money order to '**CSD**' and mail to P.O. Box 100858, Fort Lauderdale, Florida 33310. **OR**, call 305/771-0505 and charge it on your **VISA/Mastercharge** card weekdays between 9 AM and 4 PM eastern time; ask for Carol Graba!



CUSTOM AUDIO/ continued from page 21

background noise.

Noise is, by definition, a 'random frequency occurrence.' That is, while it may **seem like** you have **less noise** by turning a tone control down (eliminating the high frequencies), all that you are really doing with a tone control is eliminating the noise **in the high frequency portion** of the audio spectrum. There happens to be more high frequency portion than low frequency portion, so it gives the illusion of working. Of course in the process, it also severely attenuates the high frequency music!

A noise reduction circuit (dynamic, Dolby, or otherwise) monitors the presence of the noise and the presence of the sound. The music may 'seem' constant to you, but there are minute time-holes in any passage. If the sound system is responsive, or high quality, you will hear the noise when the sound stops, however briefly. When the music or sound is there, so is the noise. **Only the sound covers up the noise.**

In a noise reduction circuit of this caliber, when the music briefly stops, the whole circuit 'shuts down' for the length of the pause or break. This in effect shuts off the noise since the noise is the only thing remaining in those minute breaks.

A **dynamic** noise reduction circuit, in a satellite receiving system, makes particular sense because so many of the features shown are movies or other programs where there may be long periods of silence. The stereo processor units, such as the **Arunta** and **R.L. Drake** models, recognize that noise reduction is a good part of quality sound processing and they offer this type of feature.

Many stereo amplifier systems also offer noise reduction circuits, but the user must be careful to select systems which truly 'shut down' the audio between sound passages rather than simply mask the noise. The key here is something called 'attack time' and 'decay time.' When the sound stops, a 'fast decay time' will shut down the background noise before it rises up to an objectionable (or even noticeable) level. Then when the sound begins again, the circuit must be equally responsive to the sudden re-start-up of sound. If it is slow in either accord, there will be a brief 'hiss' of noise before the noise reduction begins, and a clipping of the first parts of the sound when the program audio starts anew.

- 5) **Reverberate.** Most people like their sounds pure and simple; natural. But not all people. Since sound is an illusion through any kind of speaker system anyhow, it turns out that it is possible to create just about any kind of illusion you wish. Years ago just about every (AM) radio station had an 'echo chamber'; a combination mechanical and electrical device which took a part of the sound you 'just heard' and fed it back to you a second (third, etc.) time so you could hear it again (and again). In the modern electronics world, this is called reverberation. The combination electronic/mechanical echo chambers (actually, huge spring or coil devices suspended in a 'chamber') have been replaced with ICs and other modern parts which give the user the ability to change the 'sequence' of what he hears, by adjusting some controls.

Reverberation or echo boxes are sold at all price levels, starting with the under \$30 units at **Radio Shack**. Their place in an elaborate sound system is dictated by the sound wishes of the consumer user. On MTV, for example, it can be devastating!

Wisely and carefully used, in conjunction with a proper stereo speaker system, an 'electronic reverb box' can become a sound 'enhancer.' If the particular program lacks a 'depth' of audio, or if the musical passages are 'thin' because of poor planning or recording, you can re-engineer the sound by employing a modest amount of reverberation. If the user is into strange and weird sounds, the reverb box will turn MTV's often frenetic sounds into an audio nightmare, causing passages first heard to roll back over you over and over again.

- 6) **Stereo.** At the present time very few of the home TVRO **receivers** offer stereo tuning capability, in spite of the fact that MTV, The Movie Channel, Disney and others do transmit stereo programming. Stereo television sound has been a way of life in Japan for quite some time and virtually all broadcasts now offer stereo. This is going to be the case in the United States over the

next few years as well, as the Federal Communications Commission is **now considering** the technical standards which will establish operating parameters for stereo sound TV services. There are present day techniques, however, which can create the illusion of almost-real-stereo with even the monaural broadcasts from HBO or Showtime.

True stereo begins when two or more microphones, properly situated, capture the original sound from different points of perspective. The **original** object of stereo was to simulate the kind of sound-depth your two ears capture; each ear is independent of the other and your mind hears sound from the two 'signal sources' as a combined total of the two sources.

That was before the stereo broadcasters got started, creating stereo using microphones which were yards or tens of yards apart to capture the 'moving train' or 'speeding car' effect. That your real ears do not sit yards apart made no difference; if the widely separated microphones could create a 'new illusion' that people would buy, that was sufficient.

Using totally electronic techniques, there are now products on the market which take a single (monaural) sound source and re-create a stereo which sounds for all of the world like a real (man created) stereo signal. In other words, it does the same thing that spacing microphones yards or tens of yards apart does. **It produces an illusion that people will pay money for.**

Wegener Electronics is one innovator in this field, producing mono-in and stereo-out systems for the cable industry. Their primary market has been cable systems who want to take the mono audio channel from Showtime, for example, and turn it into a stereo-like audio channel which can then be rebroadcast on the cable on the FM radio dial. This allows cable users to tune in the cable 'stereo sound' of Showtime on their FM tuner/amplifier packages, turn off the TV's old fashioned mono sound, and enjoy **Flashdance** in stereo. Even if the satellite signal was in monaural.

The price for such systems is not **that** bad, considering that you are getting a 'simulated stereo generator' plus an 'FM stereo/modulator' in the process. We'll look at this in greater detail, later. Since a system such as this is capable of turning even **WTBS Saturday Wrestling** into stereo-like sound, that means that a top of the line full package system sold by a dealer could bring the magic of 'full stereo sound' to every satellite broadcast the dish was capable of bringing in. Where there is a successful illusion, there is a sale to be made.

THE FULL System

Between the practical visual processing and the practical audio processing, it is now possible for a TVRO dealer to offer several very unique 'satellite TV illusions' to his customers; illusions which in all honesty **could also** be offered with **most** terrestrial TV systems as well. But which seem, for marketing reasons, to better fit the desires of a top-end TVRO system buyer.

The video portion involves making the most of the available base-band video signal, covering up blemishes where they exist, bringing out detail for projection systems, and sharing the basic low level TVRO video output with multiple after-units.

The audio portion involves replacement of the standard, small, mid-to-high frequency range-limited speaker system with an external system driven by amplifiers. It also offers the possibility of creating an entire family of 'sound illusions' which the user can change, at will, as the programming or mood changes.

How all of this goes together, where you find the equipment, and the kind of problems you are likely to encounter will be covered in an early edition of **CSD/2**.

**CSD and CSD/2 —
News for the TVRO
Industry on the
1st and 15th, via
AIRMAIL!**



Details/ page 23.

THE LARGEST CANADIAN / AMERICAN TVRO SHOW EVER HELD

THE SATELLITE
ELECTRONICS SHOW
SUMMER '84!

NIAGARA FALLS, NEW YORK
JUNE 12,-13-14, 1984

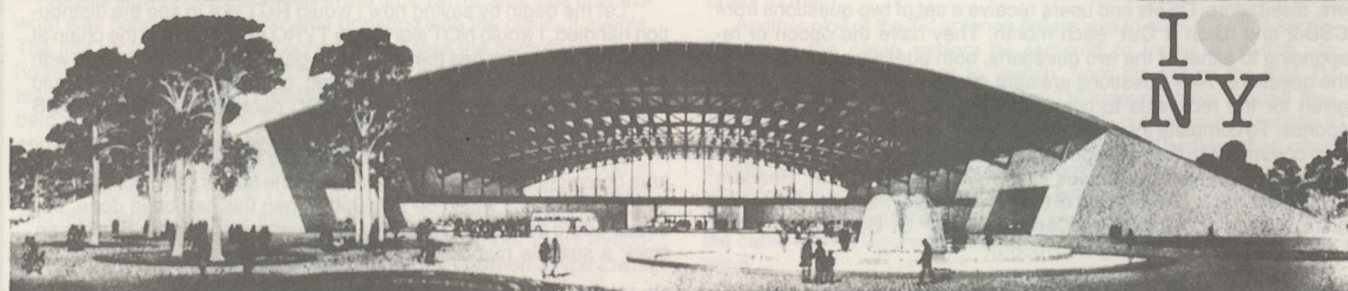
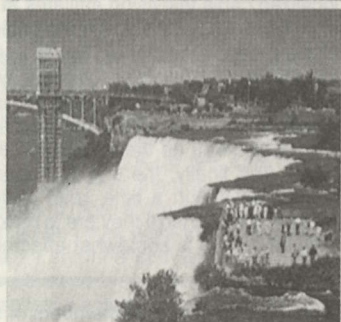
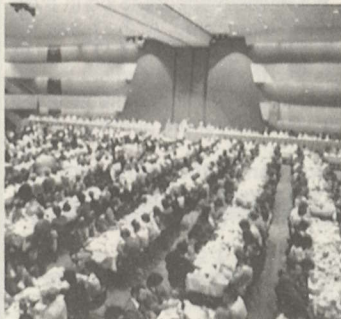
STTI proudly invites you to Niagara Falls for the SES '84 summer edition of our TVRO industry's seminar /trade show.

The spacious Niagara Falls International Convention Center, only 1800 feet from the brink of the Falls, will be the scene for **over 350 booths and 150-plus operating antennas.** And join in STTI's intensive seminar training program designed for novice and professional.

Plan to combine business with vacation and bring the entire family to this spectacular and exciting resort city, one of the world's natural wonders, lying on the U.S./Canadian border!

Attendance fee for the entire Satellite Electronics Show is **only \$25.** Special fee for spouse is **\$5.** Children under 18 admitted **free.**

Call or write for convention details. **STTI**, Box G, Arcadia, OK, 73007. 1-800-654-9276 (in Oklahoma or outside U.S.A., call 405-396-2574).



DISH IT OUT!

THE OPPORTUNITY TO SPEAK OUT ON ISSUES FACING OUR INDUSTRY TODAY.

ON THE TABLE: "How should HBO handle the distribution of C Band Direct descramblers?"

HOME BOX OFFICE, promising (unofficially) to 'launch' a 'C Band Direct' broadcasting service to America via Galaxy 1 sometime during 1984, has been especially quiet of late concerning the details of their plans. As a review:

1) Late in 1983, HBO officials and officials from Turner Broadcasting were often quoted as being involved in the planning of a 4 GHz 'DBS' service which we have dubbed **CBD**; that stands for C Band (4 GHz) Direct.

2) Ted Turner has explored use of small dishes, down to 4.5 feet in size, and has in fact installed several of them at various locations in the southeastern United States. He has been subsequently quoted as finding 'reception excellent,' on Galaxy 1, using these small dishes.

3) HBO, meanwhile, has been talking with receiver suppliers in our industry about how the existing model receivers can be 'interfaced' with the outboard (separate box) descrambler units which HBO plans to have available from M/A Com Linkabit (VideoCipher). The requirement is that the receiver have high quality, non-filtered, unclamped video available at a 'spigot' (connector) which will allow the outboard descrambler to be plugged into the system. The descrambler will straighten out the video, and, provide one or more audio channels from the digital audio data 'hidden' within the signal.

4) HBO has also been talking with the various movie (etc.) program suppliers from whom they buy. There has been something less than unanimous acceptance of the concept that HBO already 'owns' the legal, contract, rights to the motion pictures it shows . . . for resale to individual, home, TVRO viewers. HBO admits, privately, that this has **not** been all worked out; yet.

5) HBO is also still uncertain how best to 'market' the new CBD service; they are leaning towards a program which will involve their localized cable television affiliates at least in the 'marketing' (selling) end of the business. **Even** if the cable affiliates end up being 'sellers' of the product, they would like to use TVRO Dealers for at least the installation and maintenance of the systems (in those areas with cable marketing available). In areas where there is **no cable** (i.e. rural areas), an alternate plan to use qualified TVRO dealers as the marketing arm **as well as** the installation arms would be considered.

6) And finally, there is an 'opportunity window' which HBO is concerned about; a time span during which they feel the service should be launched if they are to maximize the initial sales to viewers. This time span is somewhat affected by the successful launch and

deployment of the new interim DBS service planned for the eastern US, this fall, by Comsat. No formal decision on when to actually launch the 'CBD' service has been made, but it would appear to be in the September 1 (1984) to March 31 (1985) time frame, at the present time.

Given this background, CSD/2 went to the industry and our team of 'advisors' whom we contact monthly to seek their comments and 'advice' on issues facing the industry (*). Our formal question, this month, was as follows:

"If you were HBO, how would you handle the distribution of scrambler decoders for home TVRO systems, and how would you insure that you were paid for the monthly subscriber service?"

FRANK OGDEN
Twenty First Century Media
Communications, Inc.

"OPEN MARKET APPROACH"

"HBO should offer descramblers to the open market on two plans: (A) A flat, one time fee (yes, the sale price would be quite high), in which case the unit would always be on. This would be sort of like a 'Lifetime Subscription' or 'Lifetime Membership' to a club or publication. Or, (B), they should offer the units with a reasonable down payment and a monthly rental; in which case the unit could be deactivated by HBO (i.e. be addressable). The problems would be far simpler for these programmers if they simply decided that their **initial marketing emphasis** would consist solely of 'Lifetime Subscriptions.' They could forget about the problems they are having with addressable systems and let that part of the market (those that cannot pay or will not pay a flat, one time fee) wait for technology to catch up. In time it will. The first units, sold for a flat fee, would be far simpler to administer and their marketing department would have a ball promoting **Lifetime HBO Memberships!**"

JOHN J. ZELENKA
Star Video Systems

"NO DISTRIBUTORS IN CHAIN . . ."

"Let me begin by saying how I would **NOT** like to see the distribution handled. I would **NOT** like to see TVRO distributors in the chain at all. Since the dealer has the greatest to gain or lose, let them deal with it on their own. I believe that a qualified, conscientious dealer should have the opportunity to handle the CBD packages just as the MDS affiliates (now) handle that service.

"Dealers should be licensed by HBO to handle a predetermined area or region. Where there is more than one dealer, the shop with the best qualifications would be selected. When this has been done, the dealer would be required to post a reasonable bond so the dealer can stock a suitable number of descrambler boxes for his 'territory.' A

*/ Approximately 50 members of the industry, representing dealers, distributors, OEMs and users receive a set of two questions from CSD/2 and 'Dish It Out' each month. They have the option of responding to either of the two questions, both questions, or neither of the questions. New questions are sent monthly and adequate time is given for the recipients to consider the questions and frame a response. To complete the 'loop,' readers are encouraged to make their own comments to the questions considered here each month, and we will publish relevant responses in a 'Feed Back' section. Readers who would like to become part of the initial question-answer sequence are invited to contact CSD's **Carol Graba** (P.O. Box 100858, Fort Lauderdale, FL 33310; 305-771-0505).

dealer who receives a 'territory' should be held partially responsible for the collection of the monthly service fees; when the normal through-the-mails collection process fails to produce payments, the dealer would be required to make a personal visit or institute local collection procedures.

"HBO knows, or should know, a great deal about no-pays. Between mother company Time-Life's subscriptions, their record clubs, videotape clubs and what have you, they know more about collecting money than I ever will. **But I am willing to learn!**"

CATV: UNDERSTANDING THE SYSTEM

NOTE: This CSD/2 series deals with the basis for cable or CATV service. A single satellite antenna, serving two or more homes, is by 'Copyright Law definition,' a cable television system. As the home TVRO industry expands into serving multiple residences from a single antenna, new rules, regulations, and laws come into play. The purpose of this ongoing CSD/2 series is to acquaint the TVRO dealer/installer with those requirements.

CONSTANT Change THE 'LAW' Notices

During the early years of cable, the 'master antenna' concept was accepted in both technical and legal arenas. The 'cable' operator was doing nothing more than 'filling in holes' inside of the television station's own coverage region. Behind a hill, down in a valley, there were people and homes and they could not receive the 'line of sight' transmitted TV signals without an assist from a cable-connected antenna, which brought back the 'line of sight' transmitted signals.

As these 'people pockets' gradually got cable service, the next challenge for cable operators was those communities which were located 'over the horizon,' or beyond line of sight by virtue of the distances involved. These were the so-called 'fringe-area' TV towns, where tall towers, large home antennas, and antenna mounted signal pre-amplifiers were installed. Cable worked here because the cable operator was willing to spend the kind of money required to build a tall tower (up to 800 feet in height in extreme examples). The height of his tower was a substitute for a nearby hill or mountain (such systems were often installed in regions of the country without hills or mountains) and once 600 feet or so in the air the cable system designer would install very heavy duty, high-gain antenna 'arrays' for the channels he wished to receive.

As this activity grew, primarily in the 60's, two groups took notice of what was happening and became unhappy with the chain of events. The first group to react as a cohesive unit was the manufacturers of home TV antennas. They watched in some dismay as cable went into towns such as Medford, Oklahoma (population 2,000). In Medford, before cable, there were around 500 large TV antennas; **each on separate homes**. Those 500 TV antennas, typically top-of-the-line deep fringe consumer antennas, represented perhaps \$50,000 in antenna sales to the home TV antenna sellers; at the **wholesale** level. And after cable? Virtually every antenna in town came down and that 'market' for 500 new TV antennas every three or four years evaporated. There are tens of thousands of Medford, Oklahoma type towns

"Finally, I believe the dealers can find a lot of extra 'service income' by getting into service contracts for all of their customers. A smiling satellite installer, showing up to be sure everything is working OK, even if only for a few minutes, will do far more to keep a customer happy than a threatening letter; certainly a lot more convincing. Let the customer pay HBO directly and let HBO rebate back a service fee to the dealer."

Reader comments should be directed to **CSD/2**, P.O. Box 100858, Fort Lauderdale, Florida 33310.

throughout North America. Firms building TV antenna equipment for the home saw their market drying up, going away, in perhaps a decade or less.

A campaign to make cable operators have to fight for their markets began. The TV antenna folks formed a quasi-trade association to spread the word about the 'evils' of cable television. They had limited success 'scaring' towns into reconsidering cable franchises. Cable then, and now, operates under a 'franchising' system. In most states, there are laws on the books authorizing towns and cities (and in some cases, county regions) to consider applications for 'exclusive' or non-exclusive 'permits' for various services. Garbage collection is one such service often 'awarded' on a 'franchised' basis. Cable operators asked for and received 'franchises' because they were asking permission from the city to make use of 'public streets, alleyways, and easements.'

While the cable system is installed either above ground on poles, or below ground in conduit (or directly buried), in both cases the cable plus the amplifiers and associated equipment occupies 'space.' That space, in the air or under the ground, is 'public space'; space controlled by the municipal body. Cable staked out its 'legal right' to be 'licensed' to use this space more than 30 years ago and various court decisions have confirmed this 'right.'

To gain a franchise, the would-be cable operator appears before the local governing body and asks for a permit or 'franchise' to install the cable system in the public 'rights-of-way.' There are often two or more applicants before the city fathers in a situation such as this, **each** requesting the **same** permit. It is up to the city to decide which of the multiple applicants is the most qualified to serve the public.

A competing group, such as a trade association representing the manufacturers of home TV antennas, finds that franchising process (i.e. public hearings) an excellent forum to argue **against** the city granting **any** cable franchise. When this sort of activity was popular (in the mid to late 60's), very few cities ever decided **not to grant** a cable permit because the antenna manufacturers were present. What they did do, fairly often, was to adopt into the regulations governing cable operations some legal language which responded to the TV antenna seller's fears.

For example, many cable systems would offer to 'take your TV antenna in, on trade, for the normal one-time cable connection fee.' In other words, rather than paying the (then typical) \$50 to 'hook-up' to the cable, the cable operator would agree to take the existing TV antenna down, and away, in lieu of the \$50 'hook-up' fee. This was a successful 'marketing tool' of cable, and once the cable subscriber 'lost' their rooftop TV antenna, they were more apt to continue their \$5 to \$6 a month cable service even when times were tough. They did not, obviously, have an 'option'; a TV antenna 'standing by,' if it had been 'traded in.' This practice was often legislated-against in the franchise award; the TV antenna sellers wanted to see the market left 'open' to them.

Another ploy of the TV antenna sellers was to seek the city's agreement that the cable system be required to install a 'switch'; to allow the cable subscriber to 'switch' from his still-on-the-roof TV antenna and his cable service. The TV antenna folks argued that without a switch, the subscribers were totally cut-off from television if the cable service quit. They argued that in times of bad weather, often a time when the viewers needed information the most, the cable service malfunctioned and sets were without any information at all. They wanted the subscriber to have a 'switch,' installed and paid for by the cable firm, to insure this would not happen. And sometimes they got it.

All of this local level legal activity began to attract attention. Slowly, very slowly, the city fathers were being educated. They were learning that there might be more to cable than a simple 'shared antenna.' They were also learning that many cable operators were making money. Lots and lots of money.

When it became apparent that cable operators might have excess money around, the city fathers began to ask for something from the cable firm. Most cable firms were already, on their own, paying to the city an annual 'franchise fee' in the 1 to 3 percent range. In other words, for every \$100 they took in, they were on a quarterly or annual basis turning back \$1 to \$3 to the city. This **franchise fee** was in lieu of any form of business license or local 'tax.' The justification for this was that because the cable systems were using the **public** easements for their cable systems, the 'public treasury' should be 'rewarded' for that use.

"**Suppose,**" the city fathers began asking, "you install an **Emergency Warning System** on the cable and place a control position for the warning system here in city hall. This would allow the city, through say the police department or the road department, to issue bulletins or warnings to everyone in the city." The concept was that if it was possible to 'blank out' say the audio on every channel on the cable system, simultaneously, and speak into a microphone and have a new audio message show up on every cable connected TV set in town, if there was an emergency need, the city could promptly and efficiently reach all of its citizens. A surprising number of these systems were installed in the 60's and 70's as a result of this 'city initiative.'

As cable's concept changed and expanded, the bold daring of the cable entrepreneurs was also changing. If they could go out say 80 miles from the main city where the TV transmitters were located and bring multiple channels of television to Medford, Oklahoma, why not go a little bit further? **Why not** go into cities and towns that had **their own** television station, and bring in some **distant** TV stations?

The first targets were cities where because of the FCC rules and economics only one or perhaps two TV stations were operating. Say you had a town such as Santa Barbara, California. It had **one** local TV

station. But, there were **three** primary networks. Obviously the station in Santa Barbara was in the driver's seat; it **selected** the ABC programs it **wished**, the CBS programs it wished, and the NBC programs it wished, under contract. The people served by the station were 'captives' of that program selection process. Since the Santa Barbara station could only transmit a **single** program **at a time**, that left two competing network programs out of the Santa Barbara 'market' at any point in time.

Building a cable system to serve Santa Barbara was controversial. Never before had cable attempted to compete head-on with a 'local' TV station. The cable operators, as a group, thought it was a risky gamble. The Santa Barbara TV station, and others in the TV biz, were concerned that it **would** work!

Which brought the cable industry, in the mid-60s now, into their first real confrontation with a powerful group; the broadcasters. It also attracted for the first time the 'interest' of the state and national makers of laws. Suddenly cable was controversial, and suddenly cable operators were facing a shower of proposed state and federal laws which were designed to 'balance' the competition between cable and broadcasting.

The first into the battle was the FCC. It stepped into cable in 1966 and adopted a set of 'temporary rules'; rules which were designed, openly, to protect the broadcasters. This was a dangerous, court challenged move. The FCC, clearly, had the authority of Congress to regulate **broadcasting**. But cable was **not** a broadcasting service; it was a '**reception**' service. The courts muddled along on this one until 1972; and during those six years cable growth ground to a virtual halt.

The next into the battle were the copyright holders. They maintained that cable systems, picking up off-the-air (i.e. regular broadcast) television, and then carrying those television programs into homes, were engaging in an act of 'performing.' The copyrighted programs were being 'displayed,' for a fee or charge, by cable operators. Under the then-in-effect 1909 Copyright Law, when you **displayed** or 'performed' a copyrighted work, you were compelled to pay the copyright owner. This went into the courts as well and by 1972 the U.S. Supreme Court had decided that cable's function was that of merely extending the 'reach' of the home owner's own television receiver. There was no 'copyright violation' at all. The uncertainty of the copyright question, combined with the 'temporary' FCC rules adopted in 1966, kept cable all but dead as an expansionist service, until 1973. Even then the growth was slow because cable's resources had been sapped by the legal battles before the FCC and in the nation's court systems.

When the FCC finally did release 'permanent' cable rules, in 1973, **the cable operators did not like them.** When the courts ruled that cable was not violating the 1909 Copyright Law, the FCC decided to enlarge its own rules and make up for that deficiency. FCC rules for cable dealt extensively with copyright matters and in doing so the rules greatly reduced the 'channel options' open to the cable entrepreneur. So while the long, drawn out battle over FCC cable rules was now over, the end result was a set of rules which eliminated many of the services which cable had available to sell. And this started a new round of legislative interest in cable.

If FCC rules were dealing in copyright matters, and under those rules very few new cable systems could be built, that left the cable industry in a 'Catch 22' situation. If they followed the rules, they couldn't be assured of a successful operation. If they did not follow the rules, the FCC would come along and shut them down. Since the FCC adopted rules that included matters relating to copyright, it was clear to some cable operators that the time had come to support a new (revision) of the 1909 Copyright Law. They hoped that a revised law would supercede the FCC rules, and that in the process of this, they would gain back some of what they lost to the FCC.

(It is an interesting historical note that there was in the early 70's an 'FCC Task Force' charged with the responsibility of creating cable's new rules. One of the key FCC staffers charged with this job was present day SPACE General Counsel Richard L. (Rick) Brown.)

Indispensable!



The DR601 Microwave Test Set represents the first major breakthrough in TVRO field test equipment. Specifically engineered for the professional installer, the 601 provides immediate answers to time consuming problems.

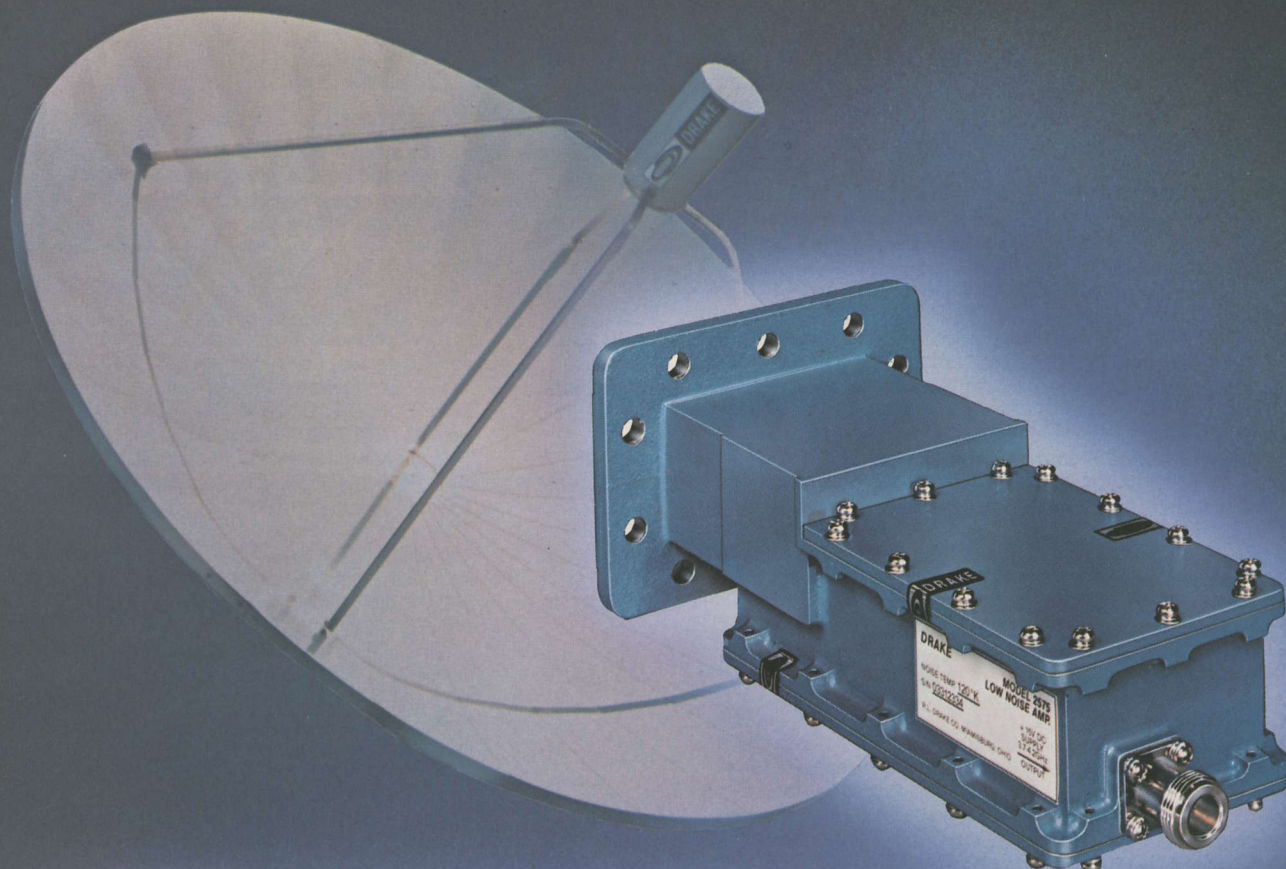
- Compact and completely portable site survey unit
- Immediate location of all TVRO Satellites
- Automatic scan of all channels (when selected)
- Powered by internal batteries or A/C line
- Built in 5" B&W or color monitor
- Large 3" easy to read panel meter
- Built in test capability and control of both polarizer & new solid state polarizer type systems

CONTACT FACTORY FOR A DISTRIBUTOR NEAR YOU

404 435-8630

MANUFACTURED IN U.S.A. BY MICRO SCIENTIFIC LABS, INC. ATLANTA, GEORGIA

CATV/ to be continued in CSD/2



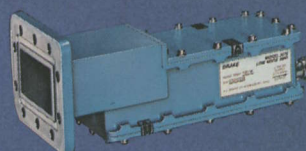
THE VITAL LINK

LOW NOISE AMPLIFIER FROM DRAKE

The Low Noise Amplifier (LNA) is the vital link in your satellite earth station, and is often required to tolerate the most demanding environmental conditions. The LNA is probably the most electrically-sensitive component in your system. This means you should take exceptional care in selecting the LNA which will maintain the high performance standards you demand.

Drake LNAs feature an integral bandpass filter and ferrite isolator to reject interfering signals and provide maximum efficiency. Each Drake LNA is tested to assure a nominal 50 db signal amplification under all operating conditions. Conservative noise temperature measurements assure you of a LNA which meets its specifications on all satellite transponder frequencies.

Drake LNAs are environmentally engineered to withstand the elements. Every Drake LNA is supplied with an individual performance report of noise temperature and gain parameters. Most of all, Drake LNAs are built with traditional Drake quality and backed with Drake's famous customer support.



Drake LNAs are available in three models to complement your antenna selection, signal strength footprint, and receiver requirements.

R.L. DRAKE LOW NOISE AMPLIFIERS

MODEL NUMBER	WORST CASE NOISE TEMPERATURE	GAIN (nominal)
2575	101 to 120 degree K	50 db
2574	86 to 100 degree K	50 db
2573	85 degree K or better	50 db

Chances are you'll specify a Drake satellite receiver, too! We're dedicated to making your earth station picture sharp and clear. The R.L. Drake Company has produced quality communications products for more than forty years. Demand a Drake!

See your local Drake dealer or contact us for further information.

R. L. DRAKE COMPANY



540 Richard St., Miamisburg, Ohio 45342. USA
Phone: (513) 866-2421
Telex: 288-017

PIONEER MEMBER OF
SPACE

© COPYRIGHT 1984 R.L. DRAKE COMPANY

INDUSTRY NEWS/ continued from page 7

NATIONAL MICROTECH, INC. President Larry Ward forecasts a very rapid expansion of SMATV type systems in the United States during 1984. He sees the successful SMATV entrepreneur of 1984 combining skills in engineering, franchising, installation, scrambling and revenue collection. NM's John Grantham feels that 'satellite signal scrambling is an opportunity, not a threat.' Grantham says the home TVRO industry will experience a rash of 'consumer awareness' during 1984 and that TVRO dealers are 'ideally positioned to put descramblers into the hands of the TVRO consumers.'

BUSINESS News

Birdview Satellite Communications, Inc. (908 W. Chesnut, Chanute, Ks. 66720), pioneer firm in the home TVRO industry to take its stock public over the counter, reports a disappointing third quarter fiscal period ending December 31, 1983. The firm had quarterly sales of \$4,144,567, approximately \$300,000 below a similar quarter in 1982, and losses amounting to over \$1M, or \$.02 per share. Birdview President/CEO Bud Ross attributes the poor quarter to a transition to their new '20/20 Multiple Receiver System' product line. The 20/20 system employs dual low-noise block down converters to provide simultaneous and totally independent selection.

EDUCATIONAL Assistance

Satellite Electronics International, Inc. (960 Matley Lane #1, Reno, Nevada 89502; 702/329-6611 or outside Nevada 800-321-9335) is now conducting a Technical Training School for satellite system installers. The school includes courses on (1) site surveys, (2) foundations, (3) dish construction, (4) electronics installation, (5) dish



SEI/ Indoor theory session

and drive interfacing, (6) system trouble shooting, and (7) system planning. Those who take the course are given a certificate upon completion of the course and there is a tuition of \$195 for the three day school. Lew Poulsen is Director of the course.

CALENDAR/ Through May 31st

- APR 16/18:** Videotex '84 at Hyatt Regency Hotel, Chicago. Contact 212/398-1177.
- APR 23/25:** NSCA Continuing Education '84 Seminar, Chicago. For details, Larry Hannon at 904/237-6106.
- APR 26/27:** Terrestrial Interference Seminar held by Microwave Filter Co., E. Syracuse, New York. Call Bill Bostick at 315/437-3953.
- APR 26/27:** Teleconference Seminar; contact 303/543-8453.
- APR 29-MAY 02:** NAB (National Association of Broadcasters) conference, convention; Las Vegas. Contact 202/293-3526.
- MAY 07/09:** EUROCAST '84, Basel, Switzerland (see preceding report under 'Shows').
- MAY 07/09:** 1984 SAT EXPO & SATELLITE DIRECT CONFERENCE; private cable, a look at delivery and scrambling systems. Contact 303/761-1135.
- MAY 08/12:** Jerrold technical (products and procedures) training school, Boston. Contact Kathy Stangl 215/674-4800.
- MAY 14/18:** Hughes (microwave) Technical Seminar dealing with AML (point to point) microwave relay systems. Contact 213/517-6100.
- MAY 15/18:** COMMUNICATIONS '84, international cable and satellite conference, Birmingham, England. Contact 201/652-7070.
- MAY 18/20:** SMATV/Private cable Workshop, sponsored by Burrull Communications. Contact 608/873-4903.
- MAY 30:** Satellite Showtime, scheduled for 8 PM (EDT) on transponder 22, F3R; two hour presentation featuring news and special coverage of the home TVRO industry.
- MAY 31-JUN 01:** Terrestrial Interference Seminar held by Microwave Filter Co., E. Syracuse, New York. Call Bill Bostick at 315/437-3953.
- MAY 31-JUN 01:** Satellite Communications Seminar, Washington, DC. Contact 703/734-7050.

BIRD Activity Update:

53° W/ INTELSAT. A new Intelsat V bird will be located here early in May to allow a new 'gateway path' between North America and Europe on both 4 and 12 GHz. The present Intelsat IV bird, now here and serving Mexico (spot beam) and Chile (global beam) will be moved to 50 degrees west. Significant traffic is expected on the new 'V' bird.

137° W/ F1R. NBC has now moved to TR1, F1R in place of TR1, D3.

JUST For Fun

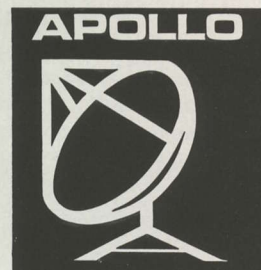
To enter the CSD/2 'Bumper Sticker Of The Month Contest,' simply pack up your firm's satellite TV related bumper sticker and mail it off to CSD/2 Bumper Stickers, P.O. Box 100858, Fort Lauderdale, Fl. 33310. Please enclose a pair of bumper stickers to allow us, if selecting yours as the winner, to properly prepare it for reproduction in

CSD/2.

This month's winner is **Pacific Coast Satellite Television, Inc.**, 4672 W. Jennifer (Suite 101), Fresno, California 93711. The basic bumper stock is white while the type and artwork (for Apollo) are royal blue. Very 'classy' indeed; now if it will just hold up in the bright, Fresno, summer sunshine!

HAVE YOU HUGGED YOUR DISH TODAY

PACIFIC COAST SATELLITE (209) 275-2322



AIMERS

BY DRACO

RIGHT ON



ACTUATOR GIMBAL BRACKET

Eliminates side and up and down pull on the Actuator. Prevents premature failure of the power drive unit.

AIMER III

The complete answer to satellite dish movement and polarotor control. Up to 64 satellite locations with microprocessor accuracy of position and polarotor. Easy to use — simply turn the knob until the satellite reads out and push "GO TO." The Aimer III does the rest. Built-in power supply — low profile — superb styling.



AIMER II

Precise antenna movement with push button ease. Built-in power supply, dynamic breaking. A solid solution to low cost dish power positioners.

POWER ACTUATOR

Designed and built for satellite dish movement. Sealed tubes, solid lubrication, gimbal rod end, Timken roller bearings, anti-jamming. Rated at over 2000 lbs. The Draco Power Actuator operates at 12 to 36 volts with self-resetting current protection. Infrared light eruptors are impervious to all electrical interference. Positively the best Actuator built.

**FOR MORE
INFORMATION CONTACT:**

DRACO LABORATORIES, INC.
1005 Washington Street
Grafton, Wisconsin 53024 U.S.A.
Phone: 414-377-0770
Telex: 26886



DISTRIBUTORS: WISCONSIN: Delta Satellite Corporation, Cedarburg, WI 414-375-1000, Nat'l 800-558-5582, Wisc. 800-242-2290. NEW YORK: Satellite Video Services, Palenville, NY 518-678-9306. OREGON: Von's Total Television Center, Eugene, OR 503-342-1618. OHIO: Satco U.S.A., New Philadelphia, OH, Nat'l 800-362-8619, Ohio 800-362-6781. FLORIDA: United Communications Supply, Tampa, FL 813-971-1648. UTAH: Video Link, Salt Lake City, UT 801-278-2878. TENNESSEE: Cox Enterprises, Rockwood, TN 615-354-3471. CANADA: Ground Control, Concorde, Ontario 416-669-6366. Satellite Systems Ltd., Burnaby, B.C. 604-430-4040. Videosat Canada LTEE, Charney, Quebec 418-832-4621. TEXAS: Morgan Satellite Systems, Hughes Spring, TX 214-639-7517.

Don't Try This Stunt At Home.

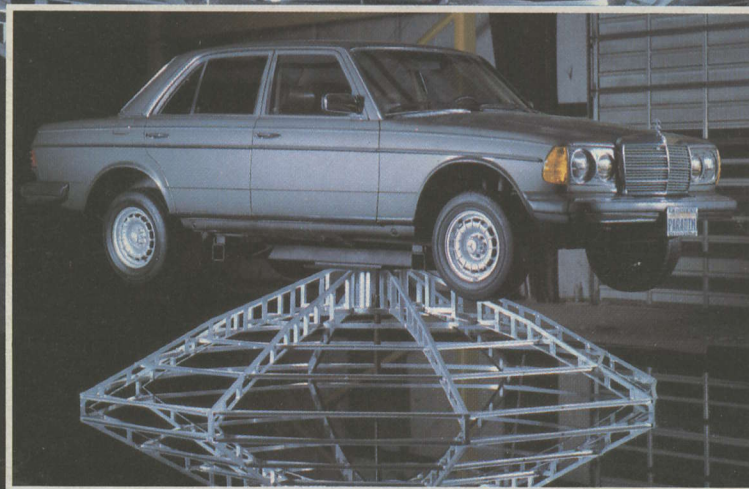


This was fun. It was a lot of work too, but it was fun seeing if we could actually do it.

It began as a little sketch on the margin of a note pad, and after a great deal of thought and a huge amount of convincing — Mike loaned us his car.

We parked a real live Mercedes Benz 300D on top of an absolutely box-stock Paraclipse antenna.

The 3.8 meter Paraclipse was assembled meshless and placed face down in a shallow pool of water. We fabricated a special steel H-shaped



rack to provide a flat surface at the balance point. The car's forward weight bias was counter-balanced with 300 pounds of steel plate in the trunk.

The total dead weight was 4,522 pounds. Total deflection under load was 1 inch and when the whole ordeal was over, the hub plate was only .45" closer to the floor than before.

Last year, during a "destruction test," we dropped 5,200 pounds of steel stock on the same antenna; so we weren't really surprised when this stunt worked.

What does it prove? Just one thing: We build a very, very strong antenna.

©1984 Paradigm Manufacturing, Inc.

Paraclipse
HIGH PERFORMANCE
SATELLITE TELEVISION SYSTEM

Paradigm Manufacturing, Inc.
3711 Meadowview Drive

Redding, California 96002
(916) 365-9131